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THE CAVALRY JOURNAL

AUG 8 1945
UNIVERSITY OF ILLINOIS

Signal Corps Photo

A patrol of the First Cavalry Division advances through a village toward Aliminos (Laguna), P. I.

JULY-AUGUST, 1945

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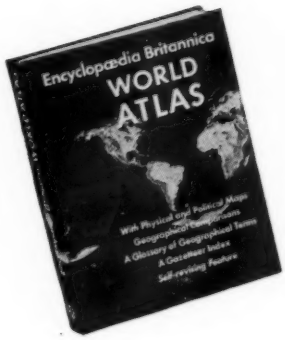

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CONTENTS

WE WERE FIRST IN MANILA 2
By Tec 5 Ralph C. McGraw, as told to Corporal Frank R. Bent

RADIO GUERRILLAS 6
By Technical Sergeant Holland Hickok

THE FIRST CAVALRY DIVISION 10
By Captain Harold D. Steward

HAIR—WHEELS—OR TRACKS 13
By 1st Lieutenant Stephen C. Perry

JAP DEFENSES IN THE PACIFIC 15
By Captain C. Vermeulen

TRAINING AGAINST JAP ENEMIES 17
By Lieutenant Clarence A. Schoenfeld

NOTES ON THE JAPANESE ARMY 19

FACING EASTWARD WITH HORSE CAVALRY 20
By Colonel Albert E. Phillips

ANIMAL TRANSPORT TRAINING IN INDIA 23
By Major Henry C. Woodward

AUSSIE HORSES JOIN U. S. ARMY 26
By Cliff Bottomley

A CAVALRY TANK FORCE IN THE DEFENSE OF A RIVER LINE 28
By Major Aaron Cohn

MOUNTED ATTACK, MECHANIZED 31
By Captain Carleton P. Jones, Jr.

COMMENTS FROM COMBAT 34

Assault Guns
By Lt. Colonel Albin F. Irzyk

Reconnaissance in the Philippines
By 2nd Lieutenant Robert M. Hill

35th Reconnaissance Troop Drives to Rhine
By 1st Lieutenant Robert W. Woods

EDITORIALS 40

GENERAL HAWKINS' NOTES 42

SOVIET CAVALRY IN WORLD WAR II 44
By Colonel I. Pronin

TACTICAL AIR POWER IN EUROPE 46

TURNING THE SIEGFRIED LINE 52
By Major John North

OPERATION PLUTO 55

TRENDS IN MECHANIZED CAVALRY 57
By Lt. Colonel Charles J. Hoy

INTELLIGENCE IN THE CAVALRY GROUP AND SQUADRON 59
By Captain Robert W. Williams

MEET THE "GOON GUN!" 62
By Major George O. Gillingham

TANK FLAME THROWER 65
By 1st Lieutenant Charles Hainfeld

EPITOME OF LEADERSHIP 66

UNIVERSAL MILITARY TRAINING 69
By Captain Myron W. Curzon

RETIRE IN TIME 72

DO'S AND DON'TS ON THE CARE OF TOOLS 73

BOOK REVIEWS 74

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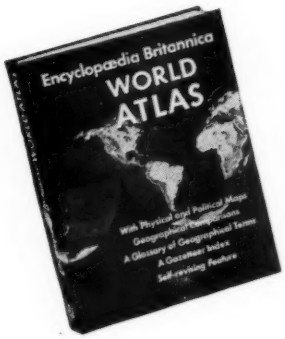

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WE W

Signal Corps Photos

Above: **Cavalrymen of the 8th Regiment on a flank guard push into the woods along the highway just outside of Santo Tomas, Luzon in search of snipers.**

Left: **A cavalryman watches for signs of Jap snipers who are firing on a hill held by the 2d Squadron, 7th Cavalry, near Antipolo, Luzon, March, 1945.**

CAPTAIN FELLEY, Battery B commander, had just returned from the evacuation hospital at Guimba, where the American prisoners of Bataan had been admitted after their release from the Cabanatuan Prison Camp, when Battalion Headquarters issued instructions for two 2½-ton 6 x 6 trucks with two drivers and two assistant drivers to be at the message center at 1800, January 31, 1945.

When we arrived at the message center, it was learned that the trucks would haul supplies and ammunition from Lingayen Gulf to Cabanatuan for the 8th Cavalry Regiment of the 1st Cavalry Division.

At 1900 the two trucks from Battery B, plus a third from Headquarters Battery, reported to 8th Cavalry Headquarters. Everyone there was packed, and only a kitchen stove, on which some coffee was brewing, remained set up. The instructions given Lieutenant Sanders (in charge of the convoy), at 8th Cavalry Headquarters differed from those received earlier. "Haul supplies, Hell!" he was told. "You boys are hauling troops. We're headed for Manila."

The trucks were to pull out at 2100 and move south to an advance base about 6 miles down the highway, where we would meet the remainder of the convoy. With 20 men from Troop H mounted on each of the three trucks, we moved out and in 20 minutes reached the advance base.

Line of March

Here the convoy was re-formed and a last minute orientation was given.

E RE FIRST IN MANILA

*by Tec 5 Ralph C. McGraw, as told to Corporal Frank R. Bent**

The mission of the 8th Cavalry was to reach Manila as quickly as possible. The 7th and 5th Cavalry were to follow and keep the road open for supplies and troops. The convoy was comprised of 15 Sherman tanks, 15 light tanks (M5A1), the 302d Reconnaissance Troop, the 2d Squadron, and an engineer section.

The mission of the 15 Sherman tanks was to open the road—to destroy road blocks, pillboxes, antitank guns, and whatever else was necessary to facilitate the movement of the column. The 302d Reconnaissance Troop which followed the Shermans, was to subdue enemy automatic and rifle fire, and eliminate as much enemy personnel as possible along the sides of the road. Troop H was to be the leading troop of the squadron, followed in order by Troops G, F, and E.

Each 6 x 6 carrying troops was to be preceded and followed by a peep (¼-ton) equipped with a heavy .30 caliber machine gun. The peeps carried four men each, the 6 x 6's 20 each. Troop equipment, such as mortars and ammunition, was to follow the personnel of each troop in a ¾-ton truck. The 14 light tanks were to bring up the rear of the column and knock out all by-passed obstacles. Our convoy consisted of 700 men.

General Mudge, commanding the 1st Cavalry Division, was to fly ahead of the convoy in a liaison plane and radio information on road blocks, bridges out, and any other information that would assist the rapid progress of the regiment.

Japs Blow Bridges

The first objective was Cabanatuan, and both squadrons began moving at H hour, 2230, January 31. Time was lost along the way because it was necessary to ford streams over which the Nips systematically had knocked out the bridges. The engineers laid crossings to repair the smaller bridges; where this was not possible, the banks of the stream were knocked out with a D8 bulldozer so that they could be forded.

The 26 miles to Cabanatuan were covered in 8 hours. While waiting there to cross the river, the enemy threw a dozen rounds at us from knee mortars (50mm grenade launchers) but caused no damage. To avoid loss of time, the tanks hooked onto the 6 x 6's and pulled them across the uncertain river bed. When the town was entered the Nips moved out to the flank. The 1st Squadron had not kept abreast of us on the other road, but it arrived in time to meet and kill 30 of the fleeing Nips.

By 0800, the convoy was on the highway outside of Cabanatuan waiting for the 1st Squadron to finish the enemy. At 1000 General Mudge landed at the head of the convoy to give further instructions and enemy information. We waited until 1500 and, as the 1st Squadron was still cleaning up the Nips, the convoy headed for Santa Rosa, where a platoon of Nips had been reported. They had already evacuated when we arrived at 1730, so we established a perimeter, and bivouacked until midnight.

The Battery B trucks were to have been relieved at Santa Rosa, but replacements failed to arrive, so we were ordered to remain with the convoy to Manila. Manila was some distance away, and many Japs were along the route.

We left Santa Rosa at midnight and continued without incident to the Santa Maria River, and the town of Santa Maria. En route we did see many signs of the Nips, but reports indicated that prior to our arrival the enemy had evacuated most of the towns, leaving only small rear guards. Large forces probably were too far away to arrive in time to support any effective holding action.

At 0800, February 3, the convoy stopped opposite Santa Clara, on the Santa Maria River. From 50 to 60 Japs were reported in a warehouse there. Dismounted troops, firing mortars as they advanced, moved into the town but met only limited sniper fire.

Movement By Bounds

Returning to the convoy at 1100, the troops continued to San Vincente. This marked the end of our unhindered advance. From here to Manila, the Jap was established on both sides of the road with automatic weapons, and the convoy had to move by leaps and bounds. Each 400 yards, the tanks were forced to stop and clear the road. The troops then dismounted and set up a small perimeter around each vehicle; the Reconn's moved up and fired heavily to gain fire superiority and pin the Nips down. Then the tanks moved forward again, soldiers mounted, and the column continued speedily on its next bound until it was stopped again by enemy fire.

A few hundred yards from Muzon we came upon 9 empty Jap trucks, which had been well camouflaged. The spark plugs were removed, and the trucks were destroyed by the tanks at the rear of the convoy.

Near Muzon, the convoy ran through a gauntlet of

*Now serving with an artillery unit in the Philippines.

heavy machine-gun fire. The leading tanks ran into obstacles and were forced to stop. My truck was going over a rise in the road at the time, and as I pulled the emergency brake back, a machine gun opened up and a bullet hit the .50 caliber MG mount over my head and sent a piece of hot metal down my neck. This made me give the brake an extra hard pull, and it jammed tight.

We all jumped from the truck. One Jap, who was on the side of the road 10 feet in front of the truck, was killed immediately. As I reached up to release my Tommy gun from the cab rack another Nip behind him began firing an American BAR. Several troops had gone after the first Nip, so I was afraid to fire the Tommy gun in that direction. However, a trooper next to me shot him through the shoulder with a carbine.

We had no opportunity to get the BAR because the convoy started to move. My brake was still jammed, but in "low low" gear I was able to move the truck the remaining 30 feet over the rise ahead. I jumped out quickly, put a screwdriver between the hand lever and the ratchet, and in a few seconds had pried the brake loose. Off again, the truck had not moved 14 feet when a shell passed through the spot where we had been standing, and another bullet struck the .50 caliber MG mount.

The convoy moved on and soon passed one of our peeps that had been hit. The driver had been killed, and the remainder of the passengers had mounted other vehicles in the convoy. We strafed the sides of the road heavily as we went by.

Along the highway north of Novaliches, many roadways led off into Jap bivouac areas; and at the entrance to each roadway was a sign bearing Jap inscriptions.

A mile past Novaliches, the convoy was stopped by heavy fire from several pillboxes, and this time it took our tanks 45 minutes to clear the area before we could proceed.

Chow is served near Manila to soldiers of the First Cavalry Division. Some, having eaten, and visible in pathway, lug grenades and ammunition up hill to forward positions.

Signal Corps Photo

Meet Enemy Vehicles

At Bagbag, the column met 25 Jap trucks loaded with troops and supplies. They were evidently evacuating Manila and moving to the foothills. What a field day followed! The tanks, Reconn's, machine guns, and everyone in general opened up. Many Japs tried to escape across the rice paddies. One Nip got about 150 yards away, and then tracers were over, around and through him until he fell forward. The Japanese force was completely annihilated.

The enemy was next met when the colonel's peep was approaching the Tulipapa crossroad. A sedan with 5 Nips came speeding down on him, but it was caught by a .50 caliber machine gun and set afire. The Japanese were killed and the sedan went out of control and nearly crashed into the colonel's peep, which fortunately had stopped in the middle of the crossroad.

Still continuing by bounds, the convoy arrived at the outskirts of Manila at 1830, February 3. Excited civilians came out to meet the troops even in the face of sniper fire. Each individual knew where the snipers were located, and each one was trying to talk at the same time. The soldiers tried to convince them that there still was fighting to do, but the citizens of Manila were so overjoyed that they simply could not realize the situation, and were constantly in the way.

The main objective in Manila was the internment camp at Santa Tomas University, but as we neared the objective our progress was slowed down by increasing sniper fire. Troops were able to move only a block at a time. At first they fired from trucks at the snipers in the buildings. Finally, they dismounted and set up a moving perimeter defense around each truck, some men in front, some along both sides, and others in the rear.

When we arrived at Santa Tomas, the tanks tried to go through the gates, but as the guns would not clear the arches, it was necessary to batter down the wall beside the gates.

While the tanks were hammering the wall, I heard a cap go off in a Jap grenade, and jumped behind the big dual wheels of the 6 x 6. The explosion injured a guerrilla major, who had been the convoy's guide on the trip, and also a colonel and lieutenant.

When openings had been knocked in the walls, the tanks and trucks entered the university grounds. The trucks formed a motor park 400 yards within the campus; the tanks formed a protective defense at the 4 corners of the grounds.

Inside Santa Tomas

The troops moved toward the main building to meet the internees, who were as wild in their reception as the civilians of Manila had been. Four Japs stood in front

Signal Corps Photo

En route to Manila, men of the First Cavalry Division take cover from enemy fire by crouching on the roadside.

of the internees and three of them were attempting to surrender. The fourth made a move as if to attempt suicide. The lives of the internees near by were probably saved by the quick action of Lieutenant Sanders, who jumped forward, struck the Jap against the ear with a carbine, and knocked him completely out of the crowd.

Snipers began firing from the windows of buildings both inside and outside of the university grounds. The troops immediately dispersed to search out the enemy, and discovered 130 internees being held by 60 Nips in the Educational Building. The release of the internees was agreed to on the condition that we furnish the enemy safe conduct for at least 5 blocks from the university. The safety of the internees permitted no other choice, and the agreement was made. Allowed to carry rifles and pistols, but no automatic weapons, the enemy marched from the building, took their place between two lines of 60 troops, and were conducted to the street. Here the column zigzagged back and forth until it was 5 blocks from the grounds. The troopers returned by a different route to prevent possible ambush.

All food supplies, which had been under lock and key, were opened. The internees had to be prevented from overeating. Children already had stomach-aches from candy given them by soldiers. Although everyone was undernourished, the children seemed to have withstood the restricted rations better than the adults.

That night the Japs made a banzai attack at the gate, and machine guns killed 35. At midnight three warehouses around the university wall were blown up by the enemy. It was believed that they were marking the area for artillery or mortar fire, but none came that night.

The next morning the 1st Squadron arrived and began clearing other parts of Manila. Santa Tomas became headquarters for the 8th Cavalry.

Sniper fire had continued through the first night, but after that became intermittent. One particular sniper had been shooting for two days, harassing everyone, but doing no damage. We named him Willie. Our snipers were posted to locate him, but to no avail. On the second day, however, a cub plane flew over Willie's building and as he jumped for a shot, our snipers got him.

Rations for all the internees arrived the second day and a diet was established. The death rate had been from three to 9 a day, but after we entered only one person died. This one died of a heart attack in the Educational Building before the 60 Nips evacuated.

The last two days at the internment camp my time was mostly my own. I spent it in the tower of the Santa Tomas main building, watching the Nips systematically blow up buildings. The tower afforded a bird's-eye view of the American attack on the Bilibid Prison, 800 yards away. With a pair of field glasses every move could be picked up. The Nips could see us observing the action, and it seemed to annoy them no end, for they began to fire at us. We took up the interest and fired back. The second day, artillery fired at us without damage, but on the third they did manage to hit the top front corner of the main building.

The third day and night I spent at the "Palace." Rockets whizzed over our heads all night and lit the sky as bright as daylight. Early the fourth morning our detail from the 148th Field Artillery Battalion started out in our three trucks to return to our own unit in the north.

Radio Guerrillas

by Technical Sergeant Holland Hickok

ON December 7, 1941, a group of 40 men, in command of Lieutenant Rogers, was on its way to Mambulao in the province of Camarines Norte, with instructions to establish an air raid warning unit there. This was one of many to be set up at strategic points throughout the Philippine Islands. Just before disembarking we learned by radio of the bombing of Pearl Harbor.

On landing at Mambulao we proceeded by truck to our location, a mountaintop one mile from the town and two miles from the harbor. Here we unloaded our equipment, which consisted of one stationary and one mobile unit, and set up for operations.

We had been in operation only two days, however, when reports were received that the Japanese were landing at Legaspi, in the province of Alba, 150 miles southeast of our location. Lieutenant Rogers decided to take 30 of the men and return immediately to Manila. He left me in charge of the remaining soldiers, with instructions to destroy the equipment, if necessary to prevent its capture by the Japs.

During the march north we were joined by a Mr. Anderson (who had spent some time in the Philippines as a mining engineer), one other civilian, and a few Filipino reserves. Later we contacted a captain in charge of a scouting party, and he kept us informed of Japanese movements in the vicinity of our convoy. Evacuated civilians were also able to furnish us with some enemy information.

We had several encounters with the Japs en route, but suffered no casualties until we reached a river crossing near the end of the constructed roadway. Here we found a bridge 50 to 75 feet above the river bed, adequate for the passage of our small trucks, but unable to support the weight of our large ones.

As the Japs were not immediately on our trail, it seemed safe to camp here to wait for the detachment of Filipino soldiers who we understood were on their way to reinforce us.

We attempted to mislead the Japanese as to the number of men in our party by the simple ruse of asking civilians whom we met where we could obtain a number of large size cooking and eating utensils. Gossip travels fast in the islands, and we figured that the Japanese would hear of this request, and overestimate the size of our force accordingly.

After several days in this camp, we sighted a Jap patrol, and immediately realized that evasion was no longer possible. The small trucks were taken over the bridge, and after nightfall the large vehicles were dynamited, and the bridge destroyed by the demolition crew of Filipinos. This had to be done after dark in order to prevent the smoke from attracting the attention of the Japanese.

On December 22 we arrived at a clearing and small

rest house which marked the end of the road. Here we went into camp again to wait for our reinforcements. The scouts and civilians kept us furnished with sufficient information to give us a general idea of enemy activities in the neighborhood, and it was apparent that they planned to attack us.

At dawn the next day, after a forced march of 48 hours with little food, Lieutenant de Brinick and his 125 Filipinos reached us. They had no sooner arrived than our camp was attacked by a force of about 300 Japanese.

When the enemy first started their attack they made no effort to take any cover, but walked slowly toward our position "as skirmishers" and thus made easy targets for our Filipinos to shoot at. We would have had very few casualties had it not been for a few snipers who had managed to get up into some tall trees, in the dense jungle on our flanks. We not only could not see them, but the rapid and steady ground firing made it impossible to locate them by the sound of their rifles or machine guns.

Our plans for defense called for the scout captain to take the forward area, while my men covered the guesthouse, which served as a fort. Before he could reach his command, however, the captain was shot by one of the snipers and had to return to the guesthouse.

I moved out at once to take over the forward area, and, crossing the clearing, saw the captain's pistol on the ground. But before I could reach the protection of the surrounding jungle, the sniper shot me in the arm.

Some of the men took me back to the shelter and gave me first aid, but we had no doctors, and no adequate medical attention for any of the wounded.

Shortly after the captain and I were shot, Lieutenant de Brinick was killed outright by machine-gun fire. The fighting continued all day, but the two officers and I, with 25 Filipinos, were our only casualties. The Japanese lost about 100 men.

The enemy withdrew at dark to wait for reinforcements, so we made good use of this opportunity to evacuate the position. I was the only one too badly wounded to walk, so a blanket-stretcher was made and the men took turns carrying me through the jungle that night and the next morning.

We finally reached a Filipino army doctor, Lieutenant Arcenio B. Almonte. He could give us little medical assistance, as his supplies consisted solely of bandages and one bottle of peroxide. He arranged for buses to take us to Lucena, in the province of Tayabas, where there was an adequate hospital.

The Filipino soldiers traveled in the first vehicles and I was laid on the back seat of the last one. We drove on safely until late afternoon when a soldier in the leading bus sighted some Japs approaching in tanks. The Filipinos attempted to wave our car off the road, but it was too late, and we rounded one curve as the Japs rounded the other. There was no need for orders, everyone who could move, made a dash for the roadside.

Pulling my blanket over my head, I played dead. The fighting went on for two hours on either side of the road, and bullets sprayed the air around me. Finally the Japanese withdrew, and we turned back into the jungle for protection. I was placed in a pit used for drying coconuts. We settled down without food or water to wait until darkness would enable us to move out with safety. This was Christmas day.

It was now impossible to reach Lucena, so the Filipinos put me on board a motor launch going to San Narciso, on the Tayabas peninsula. We were met at the landing by some natives who took us into the town. They put me in the public dispensary in order to avoid reprisals from the Japanese should they enter the town. The penalty for harboring an American was not only death for the entire family, but sometimes for the entire village.

A doctor in the town had a few medical supplies, but I was badly in need of surgical care, and this could not be given. The doctor's family cooked food for me, and I received what care they were able to give.

The local radio was still in operation, so I reported my whereabouts to headquarters with a request for orders, but no reply was ever received.

At the end of a week the Japanese were reported approaching the town and I was taken by motorboat to Aurora, a village safely back in the jungle on the southwest part of the peninsula. Here I remained for two months.

My arm had become infected and there was grave danger of gangrene. Medical supplies in the village consisted of one bottle of potassium permanganate, and bandages of flannel or any available material. Fortunately two Filipino nurses, Miss Loretta G. Shanches, head Red Cross nurse of the province of Tayabas, and one of her assistants, had taken refuge in the locality. Miss Shanches had worked for 15 years in San Francisco, and was familiar with American technique. The untiring efforts of these women undoubtedly saved my life.

At the end of two months the Japanese again were reported on the way, and I was taken by motorboat to the island of Marinduque, which was still unoccupied by the enemy. On this island I was able to secure the only good medical attention that I was to receive, other than the ministrations of the nurses. The drugstores and supplies had not been looted by the Japs and I was able to get some sulfanilamide, which at least localized the infection. By February, 1942, I was well enough to be on my feet again.

A constabulary of about 3 officers and 50 Filipinos was stationed on the island. I volunteered to help them make plans to cope with the probable Japanese landing. Except for this activity, and keeping the radios functioning, until July I spent most of my time in convalescing.

The Japs landed on the morning of July 7, 1942, at 5 a.m., and we withdrew into the mountains as planned.

Word was brought by natives that the Japs had immediately circularized a "dead or alive" notice for the constabulary officers and myself. About the 17th of July the captain and the lieutenant left the encampment, stating that they were going to town to secure information about a Japanese meeting.

At this time I was living with a Filipino family back in the mountains, where I returned after the officers left. It was not until my return to the camp next day that I found they had left no orders, and that most of the men had scattered.

Cosyao, one of the men who had been with the lieutenant in Aurora, had taken quite a liking to me, and together we rounded up the men. We scouted the area and secured enough shotguns, rifles, pistols and homemade guns to equip everyone. The Filipinos selected their own officers, and I remained with them in an advisory capacity.

Every effort was made to keep the Japs out of the southern part of the island. Bridges into the area were destroyed and road blocks established. Snipers were posted at strategic points to prevent small groups of the enemy from moving in our direction. In these operations we learned that if we worked hard, the natives were willing to help, but if we relaxed, so did they.

We got some radio equipment set up and tried to keep the island supplied with news. A few typewriters were found, and "newspapers" were typed and passed out. Natives were called in to listen to what news we could get of the outside world.

Once we ran out of gasoline for the engines which supplied electricity for the radios. In order to keep in operation we asked some Filipino carpenters to make a water wheel. They used a wheel from a native vehicle and rigged it up with paddles, and we placed it in a mountain stream. It was crude, but furnished "juice" for the batteries, and did a creditable job until it was washed out by a typhoon.

Although Japanese were on the island, they usually stayed fairly close to the coast and kept away from our headquarters in the mountains. We were able to defend ourselves against those who did come our way by taking stations at the high points over trails. As the Japs came along each of us fired at his target: *i.e.*, I took the first Jap, the next man the second Jap, and so on. In this way 70 casualties were inflicted upon the enemy against none for ourselves.

A constant effort was made to contact other radio units believed to be in operation in the area, and finally one day Colonel Macario Peralta was contacted at Panay. Through courier I learned from him that there were several Americans on other islands. Captain, now Major, Arthur K. Whitehead* was one of them. He wrote me to meet him to map out future plans. I left the units in charge of one of the boys and went to Tablas Island, where I found Captain Whitehead with several civilians, mining engineers, and enlisted men.

Major Enrique L. Jurado, a graduate of Annapolis, who had been in charge of shore patrol torpedo boats, was also here. He found that I was a radioman, so together we worked out a plan with Colonel Peralta, to organize a signal radio communication system.

Major Jurado assigned a Filipino, Lieutenant Andal, as island commander. Because of my knowledge of the island, I became Lieutenant Andal's advisor, and worked with him until the unit had been reorganized.

Three of us worked in close coördination. Mr. Kenneth H. Hanson, a mining engineer was put in charge of the engineering section, T/Sgt. Nathan W. Talbot, the communications section, and myself, in charge of design and construction. This group worked together until we left the islands.

The following months were spent collecting all types of electric equipment; transmitters, receivers and other essential items that might be used in the construction of radio sets. Batteries were obtained from cars, trucks, planes, or any other source. Radios were collected from a variety of places. Telegraph lines seldom were avail-

*See THE CAVALRY JOURNAL, September-October, 1944.

Scenes such as this were repeated many times as the small aircraft warning unit of 40 men moved ahead of the Japs.

able, but telephone wire, clotheslines and fence wire were adapted to fit the needs. The island was combed for equipment, but in spite of the fact that most of our searching was done at night there were many narrow escapes. Small native sailboats were used for transportation of equipment whenever possible, and one night we ran into a Japanese patrol.

This time we were en route across the channel returning from Romblon to Marinduque with equipment. We started on the trip late one evening in a batile (a large sailboat about 50-60 feet long), after waiting several days for a moonless night. As we came into the channel the wind died down and Mr. Hanson, 15 Filipinos in the crew, and I were left floating in a calm. Just before dawn we could see two Jap patrol boats signalling to each other near by. They knew of the operations in that area, and searched every boat in the channel. When the Jap boats headed toward us, we sent the 15-year-old daughter of the owner of our boat up on deck, to make it appear as if it was a private boat. The rest of us went below. The Japs looked us over, but luckily did not come aboard.

A central headquarters was established, and we sent Filipino operators disguised as merchants out from there to the other islands to secure information. It was then brought back by boat to the nearest radio unit, where it was coded and transmitted to our central headquarters. Here the messages were decoded and anything of value was relayed to Australia. Other outlying observation units covered the islands from coast watch stations, reporting ship movements direct to naval units. This service cost the Japanese thousands of tons in shipping sunk.

The small stations were frequently manned by Filipinos. The equipment consisted of a small radio transceiver weighing about 50 pounds, 2 batteries and a 4-cycle engine for recharging. It could be operated by 4 or 5 men.

Individual units were constantly being discovered and forced to change their location often from one island to another. But every possible effort was made to save the equipment on each move, as it was considered more valuable than a man's life.

We hated to let the Japanese capture any of our equipment, not only because of the great loss to us, but also because they could use it themselves. The sound of our transmitters sending their messages was very annoying, to say the least.

Before a radio unit was transferred from one island to another, scouts were sent ahead with letters to the governor of the island. He advised us of the safest location for the station, giving due consideration to the loyalty of the inhabitants, the terrain, and the location of the enemy. As soon as the unit arrived at its new location he would assign to that unit the barrio-lieutenant or "mayor" of the town nearest to the selected site.

The barrio-lieutenant's duty was to select the people who were to build our houses, get our supplies, and be responsible for the transportation of equipment and other necessary items which required native help. Through all moves, the Japs constantly trailed us, and many natives lost their lives because they would not betray us.

A location site for one of the radio units was always sought near water and coconut palms. These trees provided building material and food. A 90% alcohol for running the engines that recharged the batteries could be distilled from the sap. The coconut oil could be used for lubricating the engines, although it was not too desirable as a substitute.

The alcohol was distilled from coconut sap in a contraption made from empty oil and gas drums, and steel pipe. A trough was built over a fire pit and the pipes were run through water to empty into another can. This process had to be repeated at least three times in order to secure a 90% alcohol. The engines fouled quickly on such a distillate, and required constant cleaning.

On one of the islands we built a power plant which furnished the camp with electric lights, a luxury not enjoyed in many places.

Immediately after the station was set up at Sibuyan the Japs started a campaign to clear all the islands. A Jap sergeant there asked the barrio-lieutenant for information about us, but he never did secure any. This Jap stayed on the island for several weeks, and finally (with the aid of an informer) found our location. We just managed to escape with enough equipment to build another station. It was learned later that the Jap sergeant reported to his colonel that he had found and killed the three white men and burned their station.

By this time we were forced to move back into a mountain fastness, where there were no trails and where the Japs very rarely attempted to go. Here we lived with the Manians, a half-wild people, who run even from the Filipinos. They were kind, however, and took good care of us.

We had been here only a short time when word was received that we would be evacuated by a submarine which would surface at Panay for the delivery of supplies to guerrillas.

Rendezvous was set at dusk, but many hours beforehand we were in hiding 10 miles from the point, so that we could straggle in by small groups and prevent observation of our movement.

Finally in the distance, we could hear the sub recharging its batteries and unloading. We moved out according to plan and were safely aboard by midnight.

As usual, the Japs were trailing. A patrol in the vicinity apparently had spotted the sub and summoned a Jap ship, which pulled into range at daylight. We left immediately, but it was necessary to fight a running surface battle until the sub reached water deep enough to permit it to submerge.

Signal Corps Photo

Pushing inland on Leyte, 1st Cavalry Division veterans, who conquered the Admiralty Islands in their first campaign, are shown advancing toward enemy positions 100 yards beyond the beachhead. An enemy shell bursts in background.

The First Cavalry Division

*by Captain Harold D. Steward**

WHEN war was declared the 1st Cavalry Division, as part of the Southern Defense Command, was given the mission of patrolling the southern border of the United States, a mission which it continued to fulfill until February, 1943, when word came that it had been alerted for overseas combat.

Horses and horse equipment were hastily turned over to other units. Instead of blacksmiths paring hooves, motor mechanics cleaned and tested vehicles. Gatling guns with their big rotary drums were replaced by .30 caliber machine guns. The troopers were equipped with repeating carbines, Tommy guns, Browning automatics, and worked with new "Bazookas" and flame throwers. The only sabers in evidence were the insignia on the officers' uniforms.

By June 18 the last unit of the 1st Cavalry Division had left Fort Bliss, and had embarked on a new war with 100 years of tradition behind them.

Arriving in Australia in July, 1943, the division underwent special jungle and amphibious training for 5 months. It then stopped for a short time in New Guinea before going to the Admiralties.

The Admiralties and Leyte

As the one remaining link to be closed around the Bismarck Sea, the Admiralties were only 750 miles from Truk, at that time one of Japan's largest naval bases, and only 1,300 miles from the Philippine Islands.

Major General Innis P. Swift, later made commanding general of the I Corps, commanded the 1st Cavalry Division during the Admiralty Islands campaign. The original reconnaissance force to land on the islands consisted of the 2d Squadron of the 5th Cavalry Regiment, a section from the 99th Field Artillery Battalion, a platoon from Troop A of the 8th Engineer Squadron, and attached units.

A reconnaissance force under the command of General Chase landed on Los Negros on February 29, 1944, with the mission of securing and holding Momote Air Strip.

*1st Cavalry Division. From the 1st Division's Souvenir Booklet, "The First Was First."

Six hours after the original landing, General MacArthur came ashore to discuss the situation with General Chase. The commander in chief told him, "You have all performed marvelously. Hold what you have taken, no matter against what odds. You have your teeth in him now—don't let go." General MacArthur then turned and decorated Lieutenant Marvin J. Henshaw, first soldier ashore, with the Distinguished Service Cross. Lieutenant Henshaw later drowned while attempting to save a soldier's life.

The division stormed Philippine beaches at Leyte on October 20, 1944, and cavalrymen of the 7th Cavalry Regiment, under the command of Colonel Walter E. Finnegan, set the tempo of the campaign by taking Tacloban, capitol of Leyte, a full day ahead of schedule.

Writing for the Associated Press, James Hutcheson, war correspondent, said of the 1st Cavalry Division troops when they entered Tacloban: "When veteran troops of the 1st Cavalry Division arrived in the provincial capital a day ahead of schedule, they were met by happy Filipinos . . . General Mudge personally received 40 surrendering Formosan laborers after his tank battered through an upset truck which the enemy had set up as a street block. He found guerrillas presiding over the Formosans who held their hands aloft and appeared happy to be taken. General Mudge, who in the late afternoon underwent sniper fire on a swift reconnaissance at Tacloban, estimated 300 Japanese were killed while the division suffered 10 killed and 25 wounded."

Moving across the entire northwestern end of the island, the 7th Cavalry Regiment continued to push on until it was 4 days ahead of the original schedule when it captured the town of Babatngon. In this rapid movement the division's mission of securing San Juanico Straits also was accomplished ahead of time.

Invading Samar, third largest island of the Philippines, in October, 1944, the 8th Cavalry, under Colonel William J. Bradley, pushed through until it gained all military objectives including Catbalogan, the capitol.

The 7th and 8th Cavalry Regiments make up the 2d Cavalry Brigade, which during the Leyte campaign was commanded by Brigadier General Hugh Hoffman. Included in his command was the entire operation on Samar, which was fought simultaneously with the Leyte campaign.

The 5th and 12th Regiments spent more than 50 days in the rugged, mud-soaked mountains of western Leyte, which was the Japs' last stronghold. The 12th Cavalry fought through to deliver the final blow to the stubborn Jap forces on Leyte. During these campaigns the 5th Cavalry was commanded by Lt. Colonel Charles E. Brady, and the 12th Cavalry by Colonel John H. Stadler, Jr.

No story of the 1st Cavalry Division's campaigns in World War II should be written without mention of the division's field artillery under the command of Brigadier General Rex E. Chandler. Every cavalryman in the division thinks of these artillery pieces as his own special weapons.

Forward observers of the artillery have become as much a part of the front-line troops as riflemen. They eat, sleep and live with the line troops through each action. The way for many attacks in all the division's campaigns has been paved by heavy barrages of field artillery.

Terrain on Leyte was described by General Chandler as "A field artilleryman's nightmare." Yet not once during the campaign did bad terrain prevent the field artillery battalions from going into action.

The artillery not only knocked out enemy positions, it also used its big tractors to haul vitally needed supplies to front-line troops over roads that were impassable for other types of vehicles.

On one occasion in the Leyte campaign a field artillery battalion commander found a front-line outfit in need of supplies. His men and equipment immediately obtained them. Liaison planes of the artillery were used many times to make reconnaissance flights over enemy territory and to drop supplies.

On to Manila

One minute after midnight, February 1, 1945, dismounted cavalrymen of the 1st Cavalry Division started their race for Manila. Only 4 days earlier they had set foot on the beach at Lingayen Gulf, fresh from three months of tough fighting on the plains and mountains of Leyte Island. They had captured Tacloban, capitol of Leyte, and Catbalogan, capitol of Samar. They now

Members of the 7th Cavalry move forward on Leyte Island, October 21, 1944. Raising a pall of black smoke, a Jap oil dump burns near by. Soldier in rear uses radio.

Signal Corps Photo

Signal Corps Photo

Moving against a backdrop of smoke, 7th Cavalrymen of the 1st Cavalry Division advance toward Jose, Leyte.

wanted to capture Manila—the Pearl of the Orient—and the capital city of the Philippine Islands.

In the early afternoon, January 31, Major General Verne D. Mudge, division commander, called his unit commanders together and issued instructions.

"Gentlemen, our objective is Manila," he said. "We will move there by motorized columns spearheaded by tanks. I want the 1st Cavalry Division to be there first."

Contact with the Japs was made at Cabanatuan, where more than 200 of the enemy were killed. So complete was the surprise arrival of the troopers just before daylight, that the Japs had no opportunity to mine the main bridge across the Pampanga River near the town. They had succeeded in blowing one span, which was quickly repaired by the 8th Engineer Squadron.

Jap resistance at Cabanatuan was the strongest encountered by the cavalrymen before Manila was entered, yet Japanese soldiers were killed along every mile of the road.

When the 1st Cavalry Division began the push at Guimba the column was spearheaded by tanks from the 44th Tank Battalion and squadrons from both the 5th and 8th Cavalry Regiments, commanded by Brigadier General William C. Chase, 1st Cavalry Brigade. Supporting the leading columns was the remainder of the 5th and 8th Cavalry, and the division's other two cavalry regiments, the 7th and 12th.

Twenty miles from Manila at the Angat river the 1st Cavalry and 37th Infantry Divisions met. The 37th continued on the main road while the 1st detoured.

On their new route, the cavalrymen quickly built a ponton bridge across the Angat and were once again speeding for Manila. Every bridge was being blown by the retreating Japanese. Bridges that could not be quickly repaired were by-passed, and often rivers and streams were forded as the division drove on.

A few minutes after 1800 hours, February 3, a cavalry tank entered the city limits of Manila, and the 1st Cavalry Division had won the race.

On the outskirts of the city the cavalry column split. One unit sped on to capture and occupy the Malacanan Palace, the other advanced through Manila's streets and crashed through thick walls to capture Santo Tomas University and liberate more than 3,700 Allied civilians who had been interned by the Japs for three years.* The 2d Squadron, 8th Cavalry, reinforced almost immediately by the 2d Squadron of the 5th Cavalry, seized and occupied Santo Tomas University and Malacanan Palace.

First in Manila, the 1st Cavalry Division since has gone on to new battles and new honors, but will find it difficult to surpass its spectacular entrance into the capital city of the Philippines and the help it gave in the fulfillment of General Douglas MacArthur's promise to return.

*See "We Were First in Manila," page 2 this issue.

The 40th Reconnaissance Troop on Luzon

Amtanks land at Lingayen, January 9, 1945, and move rapidly inland.

Signal Corps Photo

Hair—Wheels—or Tracks

*by 1st Lieutenant Stephen C. Perry**

AS the 40th Cavalry Reconnaissance Troop headed through the surf toward Lingayen Beach, Luzon, on the morning of January 9, 1945, it demonstrated the current feeling that "the cavalry can ride anything with hair, wheels, or tracks."

Two weeks prior to embarking for the Philippines the troop was ordered to pick up 13 LVTAI amphibian tanks in which it was to make the landing and cross the two rivers which were strong natural obstacles.

The 2d Platoon of the reconnaissance troop, with 5 LVTAIs, was attached to a battalion of the "X" Infantry Regiment which was to land two companies abreast on the extreme right flank of the beach. The battalion mission for S Day was to effect the crossings of the Calmay and the Agno Rivers and establish 4 roadblocks along the division beach headline, and the platoon was to spearhead this advance inland and to the west. Two of the platoon tanks were attached to each of the two infantry companies, while the command tank was to move with the battalion CP.

S Day

The 5 tanks landed on ——— Beach, which was as orderly as an OC's foot-locker. Within 15 minutes they were all in position and moving inland according to plan. From the start, the versatility of cavalry training proved valuable. When intra-battalion communications began to fail, the platoon radios were used to maintain communications within the battalion, and the men were able to handle this additional assignment without in any way interfering with their job of spearheading.

As S Day progressed into afternoon, various objectives were taken, secured, and passed, and the battalion moved rapidly toward the day's main objectives. Opposition all along the way was extremely light; the battalion plan of operation was being executed smoothly. Every detail of the terrain had been noted previously and was familiar to men and officers, who moved forward—sure of the ground, sure of the job, and sure of themselves.

By careful study, thorough planning, and intelligent briefing of his officers, Lt. Colonel Braze, battalion commander, achieved near perfection during the initial phase of this operation. By the evening of S Day all objectives had been secured and, in addition to maintaining communications, the tanks were further used to establish roadblocks.

Employment of the tanks in this manner continued until the morning of S plus 3 when Captain John Scott Robinson arrived at Port Sual with the reconnaissance troop's M8s and bantams. Lieutenant Leo P. Davenport also arrived with the 3d Platoon and its vehicles; the 1st Platoon vehicles still had not reached the beach.

Contact

Several weeks aboard ship had done nothing to improve the equipment, but there was no time for main-

*Commander, 2d Platoon, 40th Reconnaissance Troop.

tenance, so the troop moved out immediately to perform reconnaissance over an area at times as much as 30 miles ahead of the main forces. Roads were excellent, although extremely dusty, but stream crossings and destroyed bridges constantly called for ingenuity. Field expedients as taught were often impracticable, and unique methods had to be employed.

The troop as a unit ran into its first fire fight just 10 miles out of Port Sual. At the Municipio of Alaminos some Japs had set themselves up in the municipal building, located in the heart of the city and directly across from an open plaza. The enemy force consisted of about 10 Japs and 2 LMGs.

Captain Robinson sent two of the LMG bantams to the rear of the building to cut off any retreat from that direction, and sent one M8 and two LMG bantams around a side street to a point where they could cross the plaza and attack frontally. He then took a third team down the main street to a point just in front of the plaza. This placed his team in position where they could fire to their right front at the municipal building, while the team which had advanced by the side street, delivered frontal fire. The plan worked perfectly, and the surprise and suddenness of the attack had the Japs quickly running from the building before they had time to man their machine guns. From the various positions it was then no task to dispose of them.

As reconnaissance of this area continued, the troop encountered similar pockets of Japs along the way but had little difficulty in similarly disposing of them. Enemy resistance was haphazard and poorly organized. In many cases Japs retreated to the hills without even their personal weapons.

Assistance from Filipinos

A short distance out of Alaminos the troop encountered its first destroyed bridge. The river had a hard bottom and was shallow enough in one spot to be forded, but the river banks were impossibly steep, and at first the task looked hopeless. At this point, however, the valuable coöperation of the Filipino people was enthusiastically demonstrated. Seemingly from nowhere, a Filipino civilian materialized, sensed the troop's difficulty, identified himself as a civil engineer, and offered to create a fording spot within an hour. As though he had pulled them from his vest pocket, he shortly had about 100 civilians digging a pass through the banks. In just 50 minutes the first M8 moved across the river, and once again the troop rolled forward.

The Dasol River, which is a deep swift-running stream about 150 yards wide, was the next obstacle in the way. Again the bridge had been destroyed, and again the troop seemed stymied. The mayor of Dasol solved this problem by producing a newly constructed bamboo ferry and about a dozen pole-men. Of course, it was not possible to get M8s aboard the ferry, but a strong patrol of LMG bantams (some of which mounted 50s) was sent across, and reconnaissance of the area was soon completed by these light, useful vehicles.

Meanwhile, other elements of the 40th Division had been successfully pushing inland toward the main highway which ran through the vast central plains to Manila. Guilar had been secured quickly; then Camiling, and infantry patrols were at the gates of Tarlac when the 40th Reconnaissance Troop received orders to proceed to that sector and perform forward reconnaissance to the south.

Forward Reconnaissance

Working to the south and the west, which represented the division's extreme right flank, the troop found nothing but traces of retreating enemy and indications that the Japs were all moving into the hills west of Bam-Ban.

Assigned the mission of moving to O'Donnell Airfield, the troop arrived to find that 500 Japs had moved out of the town of O'Donnell less than an hour before. The reconnaissance point spotted a couple of stragglers, but were unable to prevent their escape. In their hurried retreat, the Japs had left huge stores of valuable equipment, which was left guarded by guerrilla forces.

The troop's next important mission took it to Mabalacat Airfield on the east side of the National Highway and just a stone's throw north of Clark Field. As the first men reached the field they began to draw machine-gun fire. One artillery cub plane, already overhead, landed and displayed the holes in the tail of his plane where some machine-gun fire had caught him.

Throughout the rest of the day the men were constantly harassed by dual-purpose-AA, machine-gun, and rifle fire. That night while attempting to return to division lines by way of the National Highway the patrol was fired on at about 1700 hours by the advance party of one company of Japs just south of Bam-Ban. The point killed 10 of them and then turned back south, passed through Mabalacat, and headed for the back country. It was then too late to return to division lines that night, so the unit bivouacked far inland and worked its way back the next morning.

Rest and Maintenance

At the end of two weeks, the 40th Reconnaissance Troop was withdrawn to defensive positions on the division flank. Cavalrymen, who had spearheaded the division's advance without interruption since S Day, were able to get some much-needed rest; and equipment, which had taken the worst imaginable treatment for that same period, was given the expert attention it required.

More than ever it had been made apparent that the cavalry can ride anything "with hair, wheels, or tracks" It had ridden through heavy artillery fire when the column was spotted; into machine-gun and rifle fire and into mortar fire. Incredibly enough, only once was a vehicle hit, a .25 caliber rifle bullet bounced off the turret of one M8.

Jap Defenses in the Pacific*

by Captain C. Vermeulen, Canadian Army, attached to 27th U. S. Infantry Division

BOUNDED by rocky shore lines and surrounded by high coral reefs many of the islands in the Pacific have been natural fortresses for the Japs. The whole system of their defense evolved around a multitude of caves, camouflaged concrete pillboxes, and strong points in the hills, joined together by elaborate and well concealed communication trenches. Coral reefs were good natural outward defenses and in many cases there were only one or two openings through which an attacking force could enter. When this was the case these entrances were well "covered" by Jap fire power and the beaches inside thickly sown with land mines.

This entrance is one of the many that were part of the underground labyrinth of tunnels. Many of the Jap defenses were high on the faces of cliffs and hard to get at.

Typical of these islands was Saipan. The invasion of this small island had to be effected from the western side, which was shielded by a coral reef with only one opening of not more than 600 yards, through which the assault could be made. The opposite side of the island was sheer cliff, at some places 100 feet high. The Jap artillery and mortar fire was so arranged that it was defiladed from the fire of our cruisers, destroyers and warships and they had the opening completely registered. These artillery and mortar positions could only be reached by the carrier-based planes, and were particularly hard to locate because they were hidden in natural caves, reinforced concrete emplacements and well camouflaged positions. With the protection of smokeless powder which the Japs used effectively the job of our raiding planes was a very difficult one.

The island caves in some cases were man-made but for the most part were improved natural caves. There were several found after the island was occupied that could accommodate as many as 300 to 400 men, and some that could house several battalions of tanks and guns. Nearly all caves travelled several hundred yards underground, had multiple entrances and were mutually defended. Then, too, there were innumerable small caves accommodating machine guns or a mortar crew. To dislodge the defending Japs, the Marines would very often enter the caves in teams of three or four men each, and clear them by the use of hand grenades and flame throwers. This was a very slow process.

The flame-throwing tank was a weapon very much in use to clear out caves. They were rigged up like bulldozers—were driven to the mouth of the cave—the flame was fired and the entrance bulldozed shut. This method was only feasible when the mouth of the cave could be easily reached, but many caves were on the face of cliffs and mountainsides and had to be dealt with by other means. Caves of this nature had to be taken at a high cost of life because of little cover available on the approaches.

The Jap is equipped with infantry weapons much of the same pattern as ours, except that they are mostly of .25 caliber type. Their automatic weapons have a much higher rate of fire than ours. In all operations they use mortars in great numbers.

Seldom do the Japs concentrate more than two or three batteries of artillery fire on one spot. They are accurate but do not "saturate" a target. Their field pieces are made up of 155mm, 105mm, and 75mm guns. Frequently they use the dual-purpose 90mm AA gun in a ground rôle. A trick which caused much waste of ammunition to our forces was often played by the defending Japs. "Flash tubes" were set up at various spots, which, when fired, gave a very realistic imitation of gun flash. Many cases have gone on record of Japs overturning their guns when a near miss was scored by our artillery fire, leading our air-ops to think the gun had been put out of action, only to discover the gun back in action when the spotters left the area. Guns were often sited in the mouths of caves—a few rounds would be fired and the gun pulled back into the cave out of sight. Positions of this type were difficult to locate and when located were very difficult to neutralize.

**BMA Blitz*, Brockville, Ont.

The initial navy and air force bombardment on Saipan inflicted few casualties on the defenders because of their being firmly entrenched underground. The first landings made on the island were effected by LVT's. As the waves of men passed through the narrow gap in the coral reef they came under murderous artillery and mortar fire for a distance of 100 yards, all the way to the beach. This fire kept up for the entire first day and our troops were only able to penetrate a few hundred yards inland. Casualties were heavy—so much so that the first two battalions of artillery were knocked out before they could organize to fire a single round. The entire left flank, which had made gains of several hundred yards at one point, were forced to retire by a heavy Jap tank attack. They stayed this counter-attack by the use of bazookas, which were our main antitank weapon, and most effective.

After landings were achieved "in force" a new problem presented itself—that of armed civilians. Although the island had been bombarded by pamphlets outlining the surrender procedure for civilians, many chose to fight rather than give in. Some chose to fight along with the Japanese soldiers in the trenches and others operated in rear areas as snipers. The general impression was that these people had been terrorized by Jap propaganda into believing that the Americans were out to destroy them to a man, and there was no other way for them than to put up resistance. So they became tools of the Japanese army and many of those who did not fight died by their own hands. Many whole families were killed by the father, who in turn committed suicide—many jumped off cliffs into the sea rather than be captured. There were instances where Marines went to the aid of wounded civilians only to be killed by grenades hidden on these people, who pulled the pin at the proper moment to destroy themselves and their benefactors.

One factor that entered into the Jap defeat on Saipan was their inability to lay away supplies of drinking water. Like most of the Pacific bases, Saipan depended on rain water, which had to be taken from rooftops and stored in reservoirs. When the buildings were demolished this source was stopped and soon the supply was exhausted.

This large reinforced concrete pillbox housed a 6-inch gun, and proved a tough, strong point to break. Defense points were placed to make possible mutual fire support.

Natural caves of this type were used by the Japs for the accommodation of tanks and guns. This one was used as a tank harbor. Several were found that could hold 400 men.

There are certain things officers and men must be efficient in to do battle in the Pacific with the Japs:

(1) Be proficient in the use of the hand grenade, and likewise familiar with demolition work and the use of explosives of all types. The reinforced emplacements of the Japs often require the use of satchel charges, bangalore torpedoes, etc., to blast the opening. The chances are that engineers are not always available and it is up to each section to do the jobs on their own.

(2) Be able to fire accurately from the hip. A great percentage of firing is done in this manner.

(3) You must be able to set up a good defensive position at night. The Jap is a most efficient night fighter preferring to stay under cover by day and come out to attack under cover of darkness. The Jap night infiltration patrol is a serious menace, not alone to forward positions, but rear areas have to exercise every precaution to avoid casualties. In the first stages of the retaking of the Pacific islands many first-aid posts, hospitals, supply dumps, and higher formation HQ were destroyed before it was evident that all positions must be on the alert for action at night.

(4) Platoon and section tactics—because at nearly all times operations are carried out by a series of sub-unit attacks. Standard battle drill procedures must be adopted to cope with common battle situations, such as pillbox clearing, cave clearing with either tank or flame-thrower support.

(5) The use of flame throwers and coöperation between flame-throwing tanks and infantry is most important. Likewise close coöperation between the different arms on small-scale tactics is essential.

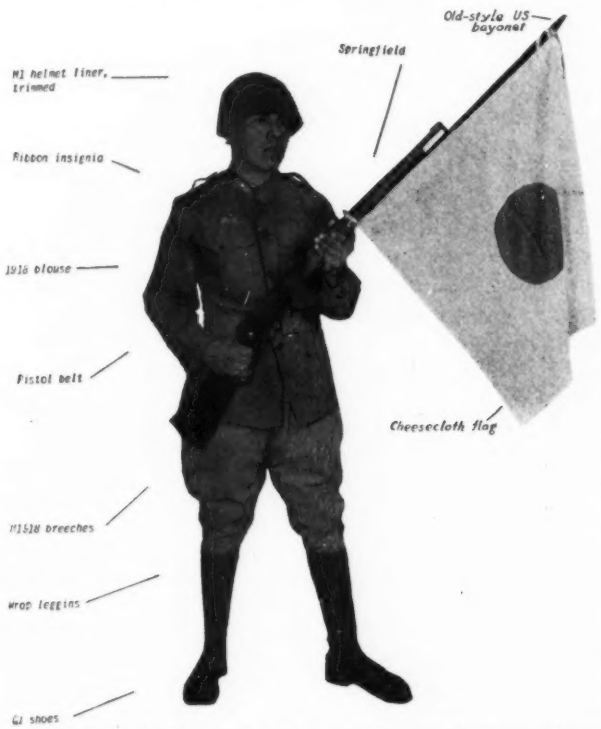
Training Against Jap Enemies

by Lieutenant Clarence A. Schoenfeld

War Department training regulations on combat state that "Field training must be aggressive and realistic. . . . The use of well-trained personnel to represent the enemy adds realism to the exercise."

BECAUSE a good soldier must know his enemy, training for Pacific combat should include as much instruction as possible in the organization, equipment, and tactics of the Japanese army. To be effective, such training should include a minimum of lecture and a maximum of demonstration and practical work. Seeing and doing is believing. If a trainee can watch a simulated Japanese squad attack an outpost position or can actually patrol against a perimeter of "Japanese" pillboxes, his understanding of the enemy will be greatly improved.

A method to represent the enemy realistically is a real problem for plans and training officers in the States.



Dressed in clothing and equipment that can be improvised on almost any army post, this American soldier can be used for highly realistic training against the Jap, which he closely resembles. Only 10 items are listed as necessary.

Japanese equipment is not ordinarily available, but improvisation can be used to create a reasonable facsimile of a Japanese unit.

The instructor should know what he is demonstrating. He should learn what the individual Jap wears and carries, and give especial attention to the conduct of small enemy units in attack and defense.

The size of the demonstration unit will depend on manpower and available equipment. It should number at least a Jap squad—13 men. If more elaborate, 75 men may be trained—enough for a 54-man platoon, including a machine-gun section, mortar, and antitank gun crews. Choose short men. The Jap is uniformly small.

After the simulated unit is ready to function, its uses are many—from demonstrating basic Jap squad and platoon formations in the attack to manning pillboxes in a "Jap" perimeter while trainees practice fire and maneuver. *Speed, simplicity, and surprise should be the principles of any Jap tactics demonstrated, since according to reports from every combat zone, these are the enemy's keystones of attack.*

Meet Your "Enemy"

Any Jap squad demonstration should emphasize the rôle of the light machine gun. This weapon spearheads the attack, often from a central position, and riflemen are deployed as its security. Any platoon demonstration should emphasize the Japanese principle of rapid envelopment. For instance, the Japs often employ two squads forward in a frontal assault, supported by a grenade discharger squad, which is in position to the rear. The third enemy squad usually makes a rapid movement to one flank or the other, depending upon the terrain and disposition of opposing troops.

Any demonstration of Japanese defensive tactics will call for a good deal of digging in. The Japanese customarily set up an all-around perimeter defense system made up of a series of strong points or bunkers. These will be arranged to dominate any available high ground. A replica of such a bunker must be dug deep into the ground and carefully camouflaged. It can be constructed of heavy logs and covered by a mound of rocks and soil. The firing port should be a narrow slit (ap-

Demonstrating Japanese defensive tactics will call for a good deal of digging-in. Bunker shown is 8 feet by 6; is constructed of native material, and has a low firing port.

proximately 6 x 14 inches) and two feet above ground level. This permits little traverse, and the fire is directed along prepared lanes or tactical wire. The bunker might well be 7 feet high and 10 to 12 feet square, accommodating 4 or 5 riflemen and a machine-gun team. Communication trenches should be dug connecting all bunkers.

To add further realism, the defense demonstration area should include numerous "spider traps"—circular one-man foxholes three to four feet deep and two feet in diameter, covered with completely camouflaged lids. The Japanese soldier in a "spider trap" usually will let the enemy pass his hide-out, then open fire from the rear.

The Japanese Uniform

Now, to give these men the appearance of the enemy:

Blouse: The old-style army blouse substitutes well for the Japanese blouse with its choke collar. These 1918 blouses can be found in many army warehouses. "Jap" insignia of rank, made from red ribbon, will add authenticity.

Breeches: Use 1918 breeches to match the blouse, or breeches issued for mounted troops.

Leggings: Draw wrap leggings from a quartermaster warehouse, or cut them from salvaged army blankets.

Shoes: The old regulation shoe (minus the combat top) does very well as a "Jap" boot.

Helmet: Trim about an inch off a fiber helmet liner to make the outline circular, paint it a dirty brown, cover with netting, and a helmet results which in silhouette at least can not be distinguished from a Japanese helmet. If surplus liners are lacking, winter caps or drivers' caps make fair "Jap" field caps.

Belt: Any type, but preferably a pistol belt worn around the waist, will complete the "Jap" soldier. Put him in a spider hole or let him filter through a thicket and from a short distance it is difficult to tell him from the real article.

Enemy Weapons

Once uniformed, demonstration crews will need "Jap" weapons. These can be improvised from American weapons, which have an added advantage in that they can be used to fire issue blanks:

Rifle: The bolt action Springfield or Enfield looks like an Arisaka and can be use effectively by your "Jap" riflemen. The sling should be removed.

Bayonet: The old issue long U. S. bayonet, while not as saber-like as the Jap weapon, is satisfactory.

Pistol: The U. S. .45 caliber pistol may be used.

Light Machine Gun: The Japanese rifle squad is built around a light machine-gun team, which carries either the Model 96 6.5mm or the Model 99 7.7mm. Since both of these models have shoulder stocks and bipods, they can be represented only by U. S. weapons with such mountings. If available, the M1919 A6 will do admirably. Lacking that, a serviceable "Jap" light machine gun can be fashioned by clamping a wooden stock to the pistol grip of a M1919 A4, discarding the tripod, and fastening a makeshift bipod to the barrel jacket. This gives a blank-firing automatic weapon as the core of the "Jap" squad.

Heavy Machine Gun: An American light machine gun mounted on a heavy tripod will represent the Model 92 7.7mm Jap heavy.

Grenade Discharger: Every Japanese rifle platoon has a support squad equipped with at least three 50mm grenade dischargers—the so-called "knee mortar." Dummy GDs can easily be made out of gas pipe scraps painted dull black. The over-all length should be 28 inches, barrel 10 inches long and two inches in diameter, and base plate 6 inches by 4. A rawhide thong can substitute for the trigger cord. Musette bags looped over the belt make fair GD ammunition carriers.

Mortar: Both the Japanese 81- and 90mm mortars can be represented by an American 81.

Antitank Gun: The U. S. 37mm antitank gun can double for either the Jap Model 94 37mm or the Model 1 47mm.

These weapons will be sufficient to demonstrate the organization and tactics of a small Japanese unit. Other items can include sabers carried by "Jap" officers, "Jap" battle flags tied to fixed bayonets, wooden land mines, grenades, and garlanded camouflage nets. Booby traps, snipers, road block, charges simulating mortar fire, and plenty of blanks can be used to complete the picture of jungle warfare.

The demonstration crew can also be taught a brief Japanese vocabulary as follows:

Attention	Ki Wo Tsuke
Rest	Yasume
Fall In	Atsumare
Right Face	Migi Muke Migi
Left Face	Hidari Muke Hidari
Forward March	Mae Susume
Detail Halt	Bunti Tomari
Fall Out	Wakare.

The demonstration unit described in this article can represent the Japanese in a highly realistic fashion. Troops trained with such a "Jap" crew will know the enemy and be better soldiers for it.

Notes On the Japanese Army*

THE following details of the Japanese Army, drawn mainly from American sources of information, should be of interest and value to those who may shortly have to encounter it on the battlefield.

The Japanese army at the end of last year numbered some 4,000,000 men, organized in about 70 field divisions; the addition of depot units and allied puppet troops would probably raise the total figure to 5,000,000. Of the 4,000,000 of the field army 2,000,000 are in China and Manchukuo and 250,000 cut off in the Pacific islands by recent Allied advances and no longer in a position to play an active rôle. It is estimated that since the Chinese war began in 1937 the total Japanese losses in killed amount to no more than 850,000, and more than that number have since been recruited in the various annual contingents. From the numerical point of view, therefore, the Japanese army is growing.

Training Begins Early

The Japanese soldier begins his military training at the age of 8 and before he joins the ranks has usually had at least two years of secondary school education. All but 4 per cent of the Japanese population are literate and 50 per cent of the soldiers usually study English. The average Japanese soldier's educational level is therefore fully as high as that of any other army.

In peacetime the term of military service is two years with the regular army for all males between 17 and 40 years of age, with preservice training from 8 to 15 years of age. In this war the term of color service has been extended to three years. Koreans were first conscripted last year, and this year Formosans will be taken in too.

The average Japanese soldier is 5 ft. 3 in. tall and weighs about 120 pounds; he can lift weights up to 150 pounds and can march up to 20 miles per day.

Most regular Japanese officers are trained in the military academy, candidates for which are selected from the various military preparatory schools in accordance with very high standards.

Japanese forces in the field are organized in groups of armies, area armies, armies and special mission forces. A group of armies usually comprises all the forces in any one theater of war; an area army corresponds to our army and an army to our corps, having a strength of some 50,000 men. The strength of the Japanese infantry company, organized into headquarters, three rifle, one heavy weapon and one ammunition platoon, is 262 all ranks.

Enemy Equipment

The artillery used to be one of the weak points of the Japanese army but it has recently been rearmed with new or redesigned material. Up to 1929 all Japanese tanks were homemade versions of French or Russian models; there are now 4 main types, ranging from light machines of 5½ tons to medium ones of 22 tons. Japanese lorries are poor; there are few of heavy category; many use self-generated fuel systems.

For intercommunication the army has "walkie-talkie," radio equipment and field telephones, both of somewhat antiquated types. Japanese engineers, on the other hand, are well equipped, and have shown special skill in the construction and demolition of bridges; but airfields and roads constructed by them fall considerably short of American or British standards. The construction of fortifications from materials available on the spot has been brought by Japanese engineers to a high level of efficiency.

Medical equipment is up to normal European standards, but some of the drugs used are out of date by British and American practice. Injected drugs, patent medicines and standard drugs are used extensively, as well as vaccines, antimalarials, and vitamin products.

The traditional stolidity of the Japanese soldier is rather the result of a lifetime training in repression than a natural characteristic. In actual fact the Japanese are a highly emotional race, but feudalistic indoctrination and ideology has taught and keeps on teaching the soldier that his highest duty is to his country and his Emperor, and that defeat in battle can be atoned for only by suicide, even if this suicide should in the long run be detrimental to his country. This indoctrination now seems to be somewhat losing its potency, to judge by the increasing number of Japanese soldiers now surrendering to the Allies.

Expert at Ruses

The Japanese have always shown themselves experts in the devising of ruses and stratagems. The variety of these devices is limited only by the fertility of the Jap imagination.

The Japanese believe strongly in sudden and swift offensive action, so much so that they often attack prematurely; they are skillful at camouflage in taking full advantage of natural cover. They are hard fanatical fighters and on the defensive will usually hold out to the last man. Their prime weakness is lack of individual initiative. When once committed to a plan, they always follow it to the end, even if it is clearly no longer applicable to a new situation. When an officer is killed, the efficiency of his whole unit is impaired unless and until a new officer arrives to take his place. Fine and formidable soldier as the Japanese is, he still has his faults and deficiencies and is by no means invincible, as the recent course of the war in the Far East has clearly shown.

*From *The Tank*, London.

Signal Corps Photo

Cavalry is shown on the Ledo Road in Burma, in March 1944, in a rugged terrain of mountainsides covered with trees.

Facing Eastward with H

*by Colonel Albert E. Phillips**

WITH the European phase of the war over, the hard roads of France and Germany, which favored the use or armor, will now have to be replaced in our battle plans by the mountains and jungles of the Pacific area, where roads are either nonexistent or difficult.

Because in open warfare no campaign follows a predetermined course, a war of movement calls for weapons which are appropriate for both offensive and defensive action. Warfare is dominated by the factors of weather and terrain, which vary in each theater of this war.

China is made to order for horse cavalry. Burma is known to have the world's worst terrain in which to wage war. Surely it is now time to change the balance of our armed forces.

Field Marshal Sir Harold Alexander should concur with this statement, for it was he who said that "The last thing you want in Burma is a mechanized army." He also highly praised the 10th Mountain Division for its effective operations in Italy.

Russian Cavalry

At the beginning of the war, Russia had 1,000,000 horses in her armies, and about 200,000 were in the cavalry.

War correspondents reported that they were astounded at the enormous number of horses with the Russian armies, and that one of the most surprising battle sights of the war was Russian Cossacks riding horses and tanks down the banks of the Elbe, to sweep the terrified Germans into the icy waters. It was no rare sight for the Russians, however, because they employed

*U. S. Cavalry, Retired.

tank-cavalry teams whenever it was possible to do so.

During the Russian retirement, Cossack cavalry did not fight a rear guard action, but raided the German rear, disrupted communications, and destroyed supplies to cause the enemy consternation and dismay. Its primary rôle was combat, not reconnaissance.

At Stalingrad a Russian horse cavalry brigade turned the German flanks and rear, created havoc and accelerated the tempo of the retreat until it became a rout.

It is little wonder the Germans feared the horse cavalry of the great Russian offensives. The Cossacks operated in coördination with armor, provided flank protection through difficult terrain, and played a major rôle in encirclements. The Russian principle was: "Tanks and infantry for a breakthrough, and tanks and horse cavalry for a breakthrough with encirclements." The Russians also say: "The hammer is our tanks, the sickle our cavalry."

It has been said by some people that "Primarily, the mission of cavalry is reconnaissance." The Russians do not agree to that statement, and they admit that they learned a lot about cavalry from us.

Japanese Cavalry

Japan learned the military value of the horse in Manchuria and China, and prior to 1937 and her present war with China, initiated a breeding program for the production of 5,000 stallions by 1945. The U. S. had 759 stallions standing in 1941. One of Japan's first acts in China was to round up horses—for one of her first discoveries had been that the machines of war flounder in the mud.

During the Chinese "Stalingrad," which was fought on the Upper Yangtze between May 25 and June 6, 1943, 40,000 Japs were killed. The Japs used tanks, and the Chinese used pack artillery. The Tokyo Gazette commented: "The usefulness of the horse in modern warfare is one of the discoveries of the present conflict, particularly in battles on the rugged steppes and in the narrow passes of the Chinese mountains."

Both Japan and Russia maintain large forces of horse cavalry on the Manchurian border, and Japan constantly has reinforced her cavalry units in China. A press report of September 27, 1944, stated: "A huge convoy of Japanese cavalry has unloaded 18 miles northeast of Foochow." And let it be added that cavalry is the only arm with which to fight cavalry.

orse Cavalry

Sicily and Italy

Horse cavalry could not successfully have operated on the African desert. But it *was* suited for Tunisia, Sicily, and especially for Italy, where mountains seriously restricted the use of armor.

In the final analysis, the campaign in Sicily was a series of rear guard battles fought by the Germans to enable them to escape to Italy, and a combat pursuit by the Allies to block the escape routes.

Escape was not prevented by airpower, and only accelerated by the armored units, unable to leave the roads and outflank the Germans. Amphibious landings made in the rear of the Germans were of no avail, and actually demonstrated the desperate need of a heavily armed force capable of surmounting terrain difficulties. Horse cavalry was designed for just such specific rôles.

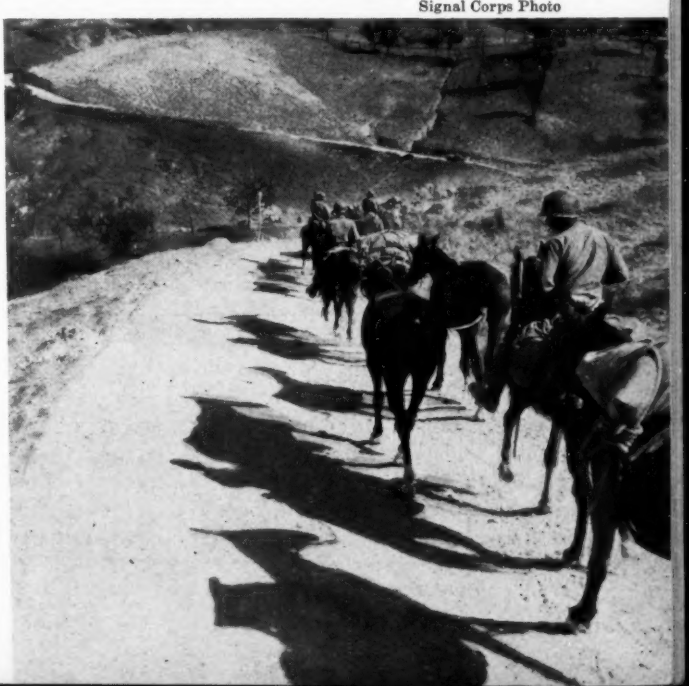
Strenuous efforts were made in Sicily, Italy, Burma and Leyte to obtain horses for cavalry, and mules for pack troops.

General Truscott, commanding the 3d Division in Sicily, stated: "If one squadron of horse cavalry and one pack troop of 200 mules had been available to me at San Stefano August 1, they would have enabled me to cut off and capture the entire German force opposing me along the north coast road."

General Lucas, when commanding the VI Corps in Italy, said: "I was in need of a unit that could get through the mountains, and trails. Horses and men on foot were the only things that could move. If I could have gotten troops behind the Germans the results might well have been decisive. I made strenuous efforts to get at least a regiment of cavalry."

Reconnaissance cavalry of the 10th Mountain Division in Italy, which led the 15th Army Group in an advance of 100 miles to cut enemy escape routes, is shown on way to front.

Signal Corps Photo



"Improvised" cavalry is makeshift at best. The improvised cavalry of Italy was not trained as cavalry, and could have been overcome in short order by trained cavalrymen.

Tactical Mobility

Man has not yet made the machine that can replace the foot soldier, the pack mule, or the horse cavalryman.

It is claimed that many horses would be killed by planes and machine guns, but hard facts belie this view. Horse cavalry can disperse faster than any other force and has machine guns which can be put into action at the gallop from Phillips equipment in 10 seconds.

All troops in battle require fire support, and every moment's delay causes casualties. An infantry division engaged in a holding action could easily be supported by cavalry, which, operating with air bombing or overhead and flanking fire support, could drive home a coordinated flank attack.

Horse cavalry is an arm of sudden speed, the value of which at times is incalculable. When coupled with surprise, it can and has achieved decisive results.

General Patton made the point clear when he said: "Horse cavalry possesses the additional gear ratio which permits it to attain sufficient speed through mountainous country to get behind and hold the enemy until the more powerful infantry and tanks can come up and destroy him."

Breeding

If modern cavalrymen do not take horses overseas with them, it means the use of improvised horses and improvised riders (which is one hell of an outfit to bear the honored name of cavalry).

The horse itself is a weapon, and a cavalry is half beaten that has poorer mounts than the enemy's. Germany bred the "Haflinger," a sturdy, mountain type horse of endurance, stamina, and toughness, even when food is scarce. The Japs have been breeding special types of cavalry horses.

The great breeding establishments that we have maintained for years should be in use. Australian cavalry horses were tried years ago and found too light. Horses bred and trained in the United States and shipped to the Philippines required but two weeks to become acclimatized, while Australian horses required from two to three months.

The old horse-and-mule transport, *Dix*, formerly kept the army supplied with animals in the Philippines, and 4 ships can do it now, and carry the forage as well.

Native Bred Animals Unsatisfactory

The policy of using animals native to a theater of operations cannot succeed for horses. It already has failed for mules, and American mules are now being shipped for combat purposes. It also has been found that many difficulties result from the use overseas of untrained pack personnel. Cavalry, therefore, should be shipped complete, both with better-bred mounts, and with trained horsemen who then will be available to care for animals which are on a mission, as well as those left in camp when troops are on dismounted missions.

Conclusions

A division of horse cavalry should be composed of a mobile force of horses and horsemen, mules and motors; of combat cars and light armored units. It would be armed with M1 rifles, .30 and .50 caliber machine guns, mortars, 75mm howitzers in pack, and 105mm motorized artillery. Motorized 105mm artillery should not be one of its integral units. The division should employ the 37mm with the short trail, as developed by the cavalry. It can be packed on one horse and is easily man-handled. The cavalry should be liberally supplied with rockets.

Such a unit would be integrated and self-contained; it could fight independently, but preferably would fight with infantry and armored units. It could operate in terrain wherever infantry could move, and would be most valuable in mountainous, hilly and jungle terrain. It is the most adaptable unit in our army—a task force that would be to infantry, artillery and armor what cruisers and destroyers are to battleships.

If I made but one recommendation, it would be to rehorse the 1st Cavalry Division, and to place it, or a similar unit, in the China theater.

It has been predicted that cavalry would never be employed as a division; so likewise it was predicted for armored units, which have fought almost exclusively as divisions.

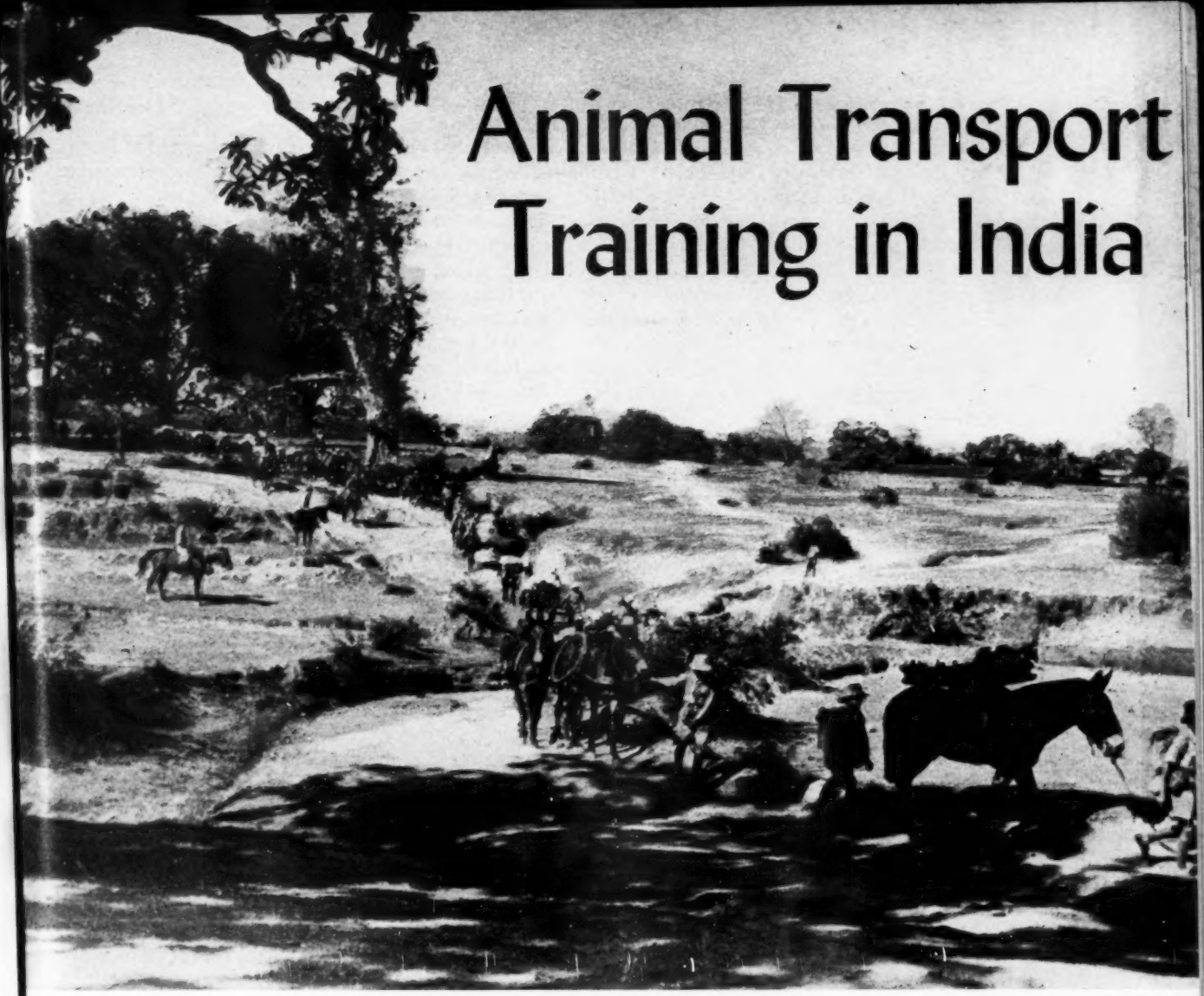
No other horse cavalry equals that of the United States in armament, equipment and training. The 1st Cavalry Division was a superb combat unit, equipped with all the modern implements of war, from the M1 rifle to 105mm cannons.

United States horse cavalry is a war tool of first importance—but only when properly used. Without bold and resourceful leaders it is not worth its keep. The war has developed such leaders.

It is possible with Phillips equipment, below, to go from the gallop to ground and to automatic fire in 10 seconds.

Signal Corps Photo

Animal Transport Training in India



*by Major Henry C. Woodward, Cavalry**

A pack artillery unit of the Chinese Army is shown on a field problem. These troops "learned readily and their interest and enthusiasm would be hard to duplicate." A course was given which did not stop for the monsoons.

IT was contemplated that the employment of Chinese troops retraining for Burma at Ramgarh, India, would necessitate much animal transportation, and in December, 1942, an Animal Transport Department was activated for that purpose. Many problems were encountered, both in training and equipping, and can conveniently be divided for discussion here into three groups:

1. Animals—including types, immunity to disease, forage, payload, transportation—and dispositions.
2. Equipment—modification of packsaddles, available riding saddles, the tandem wagon, and hangers for mortars.
3. Training—class organization, courses, marches over rough terrain—and a Chinese enthusiasm hard to beat.

*Chief, Animal Training Center, Ramgarh, India.

Animals

Although the Chinese units brought a few of the Chinese Mongolian ponies with them, it was necessary to requisition additional pack animals at once. Initially the only stock available in India was a local horse, called a "country-bred horse," or more popularly, "Tonga." Tonga more nearly conforms to the measurements of a pony. He averages 13½ hands in height, and weighs about 800 pounds. His general appearance, conforma-

The retreat of the Allies from Burma in 1942 brought Chinese troops to India. They were sent to Ramgarh Training Center for further training and re-equipping by an American Training Mission in preparation for their re-entry into Burma.

tion and disposition leaves much to be desired. However, he proved highly immune to native diseases, and maintained a good physical condition on poor or limited rations. He grazed well on native grasses that were unpalatable to other horses, and was in most respects a hardy beast. Most of the animals received had been in use before, as was evidenced by scarred backs. A few had never been broken to pack or riding. During this early period, a limited number of Indian mules and large draft horses were received and assigned to the Chinese pack artillery, where a shortage of heavy animals existed.

In the fall of 1943, the training center began to receive horses purchased by an American Remount mission in Australia and New Zealand. These animals closely resembled the American cavalry horses and could transport a heavier payload than the Tonga. More problems were added to training, because the majority either had not been broken or had reverted to an untamed state. They were not acclimated to the Indian heat or to local forage, and disease began to make it evident that although smaller and lacking conformation, the Tonga did have certain advantages over his imported relative.

In the spring of 1944, the training center was assigned a remount company. With it came the first of the American pack mules—old campaigners from the States, Panama and way points. These animals solved many of the problems. They could carry twice the payload and fared much better on native grains and straw than the Australian or New Zealand horses. Although the American horses and mules were considerably larger than the Mongolian ponies with which the Chinese "bing" was acquainted, the good humor and tenacity of the soldier soon had its way.

From the experience at Ramgarh, and observation of Chinese and American personnel in combat, the value of the foregoing types of horses can be rated in the following order: (1) American mule, (2) Indian mule or heavy horse, (3) Tonga, (4) Australian and New Zealand stock.

The care and feeding of animals in a foreign country is a subject generally omitted from most text books. We soon learned its importance, for there were neither oats nor good hay available at Ramgarh until the middle of 1944. Grain feed used consisted of a mixture of grain and barley, with maize and bran as substitutes. The best Indian long forage at this time was baled chopped rice, locally called "Bhoosa." An unchopped rice straw in loose bundles could be substituted. The chopped straw, although lacking many vitamins found in our own long forage, kept well regardless of exposure to weather because of the tightness of the bales. In the summer and early fall months, native labor was employed to cut green grass, which proved very beneficial and aided the animals to recover flesh lost in the exceptional heat. Rock salt was easily obtained locally.

Although Ramgarh is located in the milder Surra district, so that problems usually encountered in Burma during the wet season were not met, the veterinarian ordinarily had a busy sick call. The usual run of kicks, sore backs, rope burns and skin abrasions were aggravated by screw worms if not promptly treated. The Tonga added to the sick call with a mean disposition, which expressed itself in kicking. Some hoof trouble was encountered, but was kept under control by proper shoeing and attention to the standings. Scar tissue on the backs of many of the older Tonga ponies reopened under pack loads. A short epidemic of glanders was quickly and effectively brought under control.

The methods of rail transportation of animals in India are not familiar to most American personnel. The freight cars or wagons hold only 8 to 10 animals on the broad gauge rail, and 6 to 8 on the narrow gauge. A rail movement generally lasts a week or more. Transfers from one gauge to another or to ferries are frequent. For the movement, three or four animals are loaded in each end of the car. Heads face toward the center, and animals are held in place by two breast-high retaining bars. Hay, grain, and water are then placed in the center portion. One or two Chinese soldiers remain in the car to care for the animals throughout the journey.

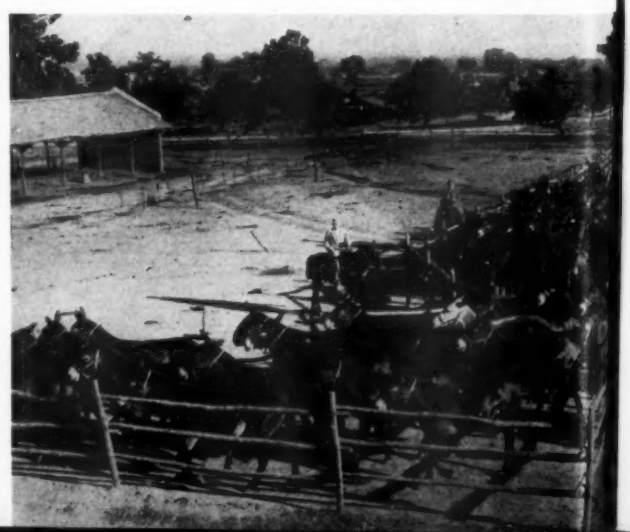
Water is a major problem in rail movements, as it is not obtainable at most stops and when available often is limited. Containers are improvised from old pack boxes lined with a packmanta, or from gasoline or oil drums. In fact, one of the principle duties of the American liaison personnel on these trips is to perform considerable improvisation to provide retaining bars and loading facilities.

Exercise of the animal at every transfer point is mandatory. It is surprising that the animals come through this rigorous journey in good condition.

Equipment

The initial issue of equipment for the Chinese in the Indian theater consisted mostly of British stocks.

American mules are shown being run through the chute in the remount corrals. These animals solved many problems, could carry twice the payload, and fared much better on the native diet than Australian or New Zealand horses.



One of the principle exceptions was the packsaddle, which was a "Phillips," with the weight reduced by the substitution of light steel for aluminum in the frame, and the removal of part of the filler in the packs. This was necessary because a majority of the pack animals in this theater were smaller than the average American cavalry horse.

The British packsaddle differs from the American. It weighs less, does not have so rigid a frame, and is constructed to use slung rather than lashed loads. The cargo is tied with a special "baggage hitch." After the hitch is attached, the cargo is raised and fastened to the saddle by means of two hooks on each side of the arch. This enables it to be removed without undue difficulty at the halts, but does not permit bulky or odd loads to be carried.

Initially, pack hangers were not available at the training center, but improvisation and experience showed that any load could be lashed onto the saddle and packed out. This was excellent training, for in combat it is not always possible to have the proper hanger at the proper place. A hanger was designed and produced locally for the 60mm mortar and its ammunition.

Horseshoeing, saddler and veterinary kits used were all of British make. Riding saddles were an odd mixture of British trooper's saddle, English riding saddle and French officer's saddle.

At the beginning of the training at Ramgarh, it was believed that a horse-drawn cart would be of value in the terrain. Because of the narrow trails it was thought that the cart should be drawn by two animals on a tandem hitch, to which the British packsaddle could easily be adapted. But the cart soon proved impractical for several reasons, and was discarded.

With the American mules, came a large cargo of packsaddles and many types of hangers from the States. Initial training had been made with British horseshoe and saddle kits, and the equipment was not changed.

Training

Training was carried out by a unit under the supervision of the liaison officer, and was conducted by the Animal Transport Department in schools and special courses. The liaison officer had a difficult and important task, and was generally assigned to accompany the unit into combat. His first duty with a unit was to coordinate the enrollment of students in the appropriate schools offered by the Animal Transport Department. He then helped the Chinese draw animals and equipment. This work was complicated, because the animals were scattered throughout the organization, and it was necessary for each unit to draw special types of equipment. The Chinese rapidly learned the dispositions of the animals; this made careful assignment of horses by the liaison officer advisable.

Chinese students from infantry, engineers, signal, medical, veterinary and heavy weapons units joined men from the pack companies in learning packmastership, horseshoeing, saddlery and animal management.

Chinese troops are shown on the trail during training at the Ramgarh, India, animal transport center. Troops are members of a pack artillery unit; the animals are of a larger type for this kind of work. The terrain is rugged, and is therefore well-suited for training for the work ahead.

A separate school was established for each subject under specialized instructors; courses were created to train specialists for the many units.

The 6-day packmasters' course included classification of packsaddle, selection and training of pack animals, nomenclature, fitting and adjustment of equipment, loads and loading. It ended with a practice march.

The saddlers' course was a 9-day course. Students worked with, and learned to use tools—cutting leather, finishing the edges, sewing and repairing it, in practical work.

The horseshoers' course lasted three weeks, during which time work was of a practical nature.

The training centers' 6-day animal management course for both horse and mule covered such subjects as feeding and watering, stable and field management, preventions and first aid treatment for disease and injuries.

A 4- to 16-hour course to familiarize Chinese general officers and American officers and enlisted men with animal pack transport often was presented.

Located in a valley with mountainous terrain near by, the training center was situated ideally. Training did not stop for the monsoon season, and as soon as individual training had been followed by unit training, long marches were made under conditions approximating those anticipated for the units. On these marches the unit was in a completely inaccessible part of the mountain for 4 days. They were the first proof that the training was sound. The Chinese officers and enlisted men learned readily and their interest and enthusiasm would be hard to duplicate.

The Phillips cargo hitch, used exclusively by the training department, was found to be the best for general use.

During the Burma campaign, the success of Ramgarh-trained Chinese troops proved that the efforts of the Animal Transport Department had contributed its part toward driving out the Japanese.

Aussie H

Pictures by Australian News & Information Service.

Above: Roaming the paddocks with ungroomed winter coats, flowing manes and tails, these horses are a rough lot. But limbs and lungs are sound; eyes are bright. Under currycomb and balanced diet of alfalfa, oaten chaff, oats, bran and salt, they will develop into handsome, powerful and valuable animals.

Above: Some of the draft do not take things as easily as others. Then trainers must show them who is master the hard way. Rough rider mounts and outrides bucking horse. Australian stock saddle offers much less grip than Mexican type used in U. S. so riders must have perfect balance, experience.

Above: Now accustomed to bit, animals are taught to respond to directions on reins. They have four lessons, each of two and one-half hours. At the same time, horses are made accustomed to the feel of saddle and harness.

Right: Weight of nearly 200 pounds loaded onto packsaddle makes this horse brace its legs and flatten ears back before staging a show of temperament. Men are ready.

Horses Join U. S. Army

OF necessity horses are now joining the world's most mechanized army—that of the United States—to do transport jobs that planes, jeeps, tanks and trucks are unable to do. Drawn mainly from the vast horse herds of North Queensland's cattle country, the Australian horse of World War II is doing humble work compared with the spectacular feats of past generations of the Australian remounts. (Editor's Note: Or of today's Red Army Cossacks).

A milling mob of mostly unbroken horses, herded from open mountain pastures, is handled and trained by expert Australian horsemen before going on Uncle Sam's ration strength. Like a draft of humans, the mob contains good characters and bad ones—wild outlaws who will never submit to discipline and easy-going types who will work herocially for anyone who treats them well.

There are no office jobs for 4F horses in the U. S. Army. Size requirement is between 15 hands and 15.3 hands, and age limits, 4 to 10 years. The ideal Army type is light enough to be agile, sturdy enough to carry loads, with a chest that indicates powerful lungs, and hindquarters muscled to push her up steep grades.

A highly skilled Australian veterinary gives inoculations that make the horse trainees virtually immune to tetanus and strangles.

Very soon horses look sleeker and better-groomed. The bit is harder to take than the bridle straps; a horse will give 4 lessons with the mouthing tackle, each lasting two and a half hours. When lessons are over, pressure of the bit will have made the horse's mouth not sore, but tender enough to facilitate later lessons in responding to direction by the reins.

The horses learn their paces, get used to steady trotting and cantering instead of the wild dashes of their "civilian" days. During training they get evidence that men's gestures and voices do not bode ill for horses; at least, for obedient horses.

A horse is ineligible for the U. S. Army in the Pacific if the white on the face and stockings extends over too much of the hide, or if the horse is grey or "washy colored." Bay color is most suitable. Brown, black, roan or chestnut also are O.K.

When grooming the new horse recruits, Australian soldiers pet them, talk to them, handle them, mount and dismount, do everything possible to make the horses proof against surprises or shocks.

Unless a good horse is particularly placid, she will like the place of honor at the head of a training pack team and will resent any other place in a line of horses once she has become used to being leader. She will want to see where she is going—not just the rump of the horse ahead.

Scientific care is given all horses. Dentists are no more popular than with humans, but horses are handled quickly by men who know the difference between what merely feels uncomfortable and what hurts. For even a minor operation instruments are sterilized and handled with care.

The shoe-advertiser's assurance that "if your feet hurt, you hurt all over" goes for horses too. Farriers are important men in horse units, and members of the pack train are as carefully fitted as members of an infantry column. Lost, loose, or uncomfortable shoes can mean disaster on jungle trails.

An Australian horse in the U. S. Army gets periodical health checkups, receives a scientifically balanced diet, gets tooth and hoof attention at regular intervals.

★Australian War Photographer now with the Allied forces in the Philippines.

by
Cliff Bottomley★

Trained to their jobs, pack horses walk in line-ahead formation along a mountain road in New Guinea. Total time from a wild bush mare to a finished army pack horse is only 24 days; horses not ready to take their places in a pack-train in that time are reckoned outlaws, and dishonorably discharged. Others take to trail.

A Cavalry Tank Force

In the Defense of a River Line

*by Major Aaron Cohn**

THE 3d Cavalry Group landed on the beaches August 9, 1944, at the height of the enemy counterattack at Mortain. By September 1, spearheading and screening the advance of the XX Corps, advanced elements of the Group were at the Moselle River overlooking Germany. The historic fortress of Metz, however, still denied our forces a crossing in force over the Moselle. It was clearly evident that the campaign would stabilize along the river until troops and supplies could be built up for a major assault crossing.

During the month of September the 3d Squadron was employed as infantry on the Corps' front. By October 10, the Wehrmacht had been cleared from the west bank of the Moselle from Echternach to Maizieres les Metz. The 3d Cavalry Group (reinforced) was in a stabilized position along a 16-mile front on the Moselle River. (See Plate 2.) The line was thinly held, but it enabled the Corps to concentrate the 90th Infantry Division behind this cavalry screen. The 10th Armored Division was concentrated in rear of the 90th Division, ready to exploit the bridgehead gained on the east bank. In order to successfully hold such a front, the 3d Cavalry Group was supported by one battalion of 155 howitzers, and one battalion of 105 howitzers. A tank destroyer battalion (3-inch guns, towed) and an engineer combat battalion were attached.

It was of utmost importance to hold the terrain along the river as it was here in an encircling movement from the north that the Corps planned its successful attack over the Moselle on Metz.

The method of this successful defense of a river line as a line of departure of a major attack was simple and effective. There were a number of villages along the river, backed by a series of rolling hills. The buildings in the villages, made of solid stone and brick construction, formed the core of resistance. They made excellent OPs, and weapon positions to cover the flat land adjacent to the river, and offered a haven to the troops against the elements. (In this rainy autumn, more men were lost to the elements than to enemy action.) The buildings also provided good protection from the enemy artillery positions and from Forts Koenigsmacher and Illange on the east side of the river.

The vehicles accompanied the troops into the towns, and were placed in buildings available for action. This provided highly mobile fire power to sweep the flat land of the river valley and also furnished radio communication with all units in the event that wire failed.

During the day, a system of OPs kept the river line under constant surveillance. Wire lines were run back to mortar positions, assault guns, tank destroyer and artillery positions, so that fire could be massed quickly at any given point. The tank destroyers, artillery and assault guns, and organic cavalry weapons fired during the day at targets of opportunity reported by the OPs, and the enemy was made to realize that his slightest

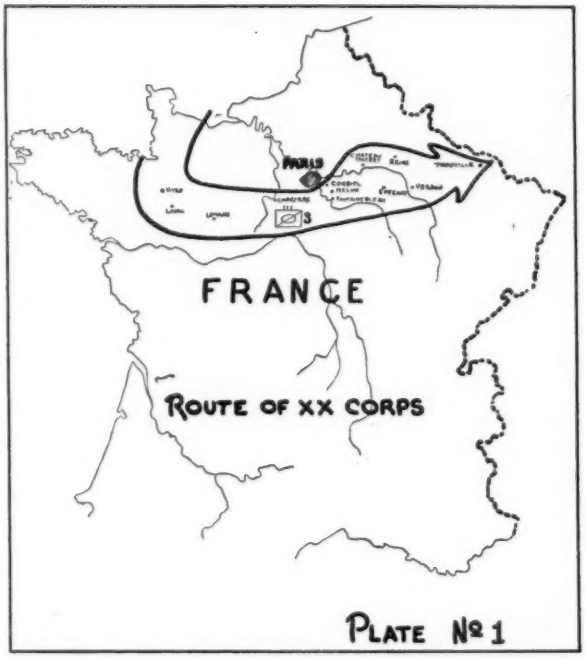


PLATE №1

movement brought a veritable deluge of fire. These tactics caused him to be more reluctant to assume an offensive attitude and limited his activities to darkness.

At night, heavily armed listening posts were moved down to the river's edge, patrols were sent across the river periodically, and combat patrols worked between strong points to intercept hostile enemy patrols probing into our area. The constant harassing fires of all the heavy weapons during the night created a considerable show of force, gave the enemy no time to relax, and complicated his supply problems. In an effort to keep the enemy off balance, this fire was changed from day to day, with variations in weapons, locations, and routes.

Immediately before the Corps attack across the Moselle, the counterreconnaissance screen was intensified to prevent enemy patrols from penetrating the

*S-3, 3d Cavalry Group (Mecz).

area to discover the heavy concentration of troops in our rear.

At times tanks and armored cars were deliberately exposed to the eyes of the enemy to let him know we had a force prepared to repel any thrust. Vigorous patrolling, a show of force, and strong fire power are necessary to hold a large sector with a small force.

The following summary of the successful defense of the position should be of more than passing interest.

Patrolling: In the defense of the river line involving a large portion of ground, patrolling was aggressive and constant at night. The gaps between the strong points were covered by strong combat patrols on the prowl to prevent infiltrating troops. The men were fully briefed, equipped, well armed, and imbued with an aggressive spirit of either "kill or capture" the enemy.

Patrols sent across the river to capture prisoners, to ascertain the enemy's plans, installations, capabilities, etc., were extremely valuable. Missions were simple, and had limited objectives. If possible, patrol leaders made a ground study of the terrain by liaison plane. Maximum use was made of aerial photographs for briefing of the patrol and a study made of possible crossing sites. The men were also given preliminary training in the use of the boat to be used. The artillery support was always ready for execution.

Armored Vehicles: Vehicles were prepared for action and accessible to the troops, at all times. Hidden in the daytime to prevent being a lucrative target, they were brought out at night to form the perimeter defense of the strong point. Routes were previously reconnoitered so that when the LP reported any enemy movement, the vehicle rolled to the scene immediately, to destroy the hostile patrol. Time after time, it was proven that the fire from weapons on the armored cars and tanks were particularly destructive to enemy caught in the open.

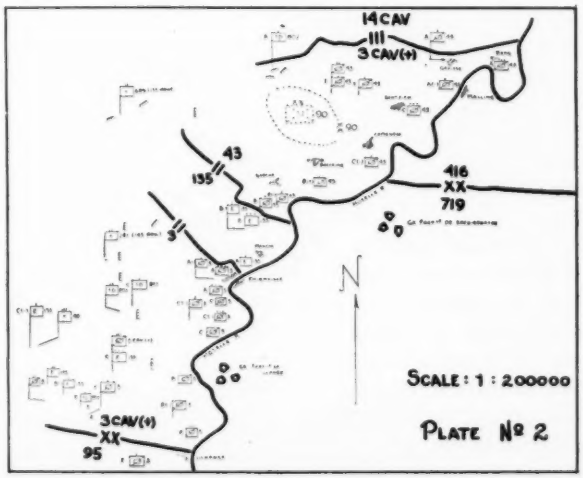
Assault Gun: These were placed in battery, to fire at targets of opportunity during the day and for harassing fires during the night. Good forward OPs were maintained with direct lines to the assault guns. The guns were also tied in by a lateral wire line to the artillery FDC. This enabled the assault guns to obtain any meteorological or fire data necessary and, through observers with both the artillery and the assault guns, to place coördinated fire on targets with the artillery. They were invaluable in this particular type of action as the cavalry's own organic artillery. Key personnel in the reconnaissance troops were given an opportunity to adjust fires of the assault guns.

Communication: In a stabilized position such as this, wire communication was essential, and maximum use was made of it. Radio alone was not feasible (particularly CW), so wire and FM were both used, with wire given the priority. The reasons are obvious. Speed was essential, particularly when any portion of the sector was threatened. Wire was invaluable to tie in the artillery, tank destroyers, engineers, the group headquarters, the squadrons, and the troops, and this network of communication made the task force a homogeneous team. Wire was certainly the answer to our communication problem. (Each group headquarters, squadron headquarters and troops will have to train a makeshift, small wire team for just such situations.)

Supporting Artillery: The senior artillery officer was made responsible for coördinating the plan of harassing fire of the assault guns, tank destroyers, and his artillery. This centralized control prevented repetition of harassing fires, and coördinated fires so that they could be massed in a crucial area on prearranged plan. The plan of prearranged fire concentrations were directed from his FDC. It has been mentioned that the assault guns were wired in to the FDC by lateral lines. This permitted even greater cohesion because the FO of the assault guns could fire the artillery, or vice versa. The plans of fire concentrations were disseminated down to the platoon leader and his men, so that a private could ask for a concentration number when it was necessary, and know what he was talking about. The men were made "artillery conscious" and realized that in such a stabilized position artillery is valuable. They were taught to have confidence in their supporting artillery, and key personnel were able to adjust artillery fire correctly.

Tank Destroyers: The towed weapons which this task force had were used to augment the supporting artillery in their indirect rôles. Possessing an FDC in the company headquarters made the fire plan simpler. At least a platoon of guns was kept for their primary rôle of countering any enemy tank threat. They were also prepared to fire on any lucrative targets on the other side of the river by direct fire.

Engineers: One platoon of engineers was sufficient to support each squadron. They were utilized in placing booby traps, trip flares and antipersonnel mine fields along the river bank, in wiring in strong points, and in constructing road blocks. No antitank mine fields were placed, as they tended to limit the movement of our



own tank troops. Friendly troops should know the location of such installations and accurate sketches made to turn over to relieving troops. The engineers who placed those obstacles should remain available to orient relieving troops or remove the fields. Failure to do this will be disastrous.

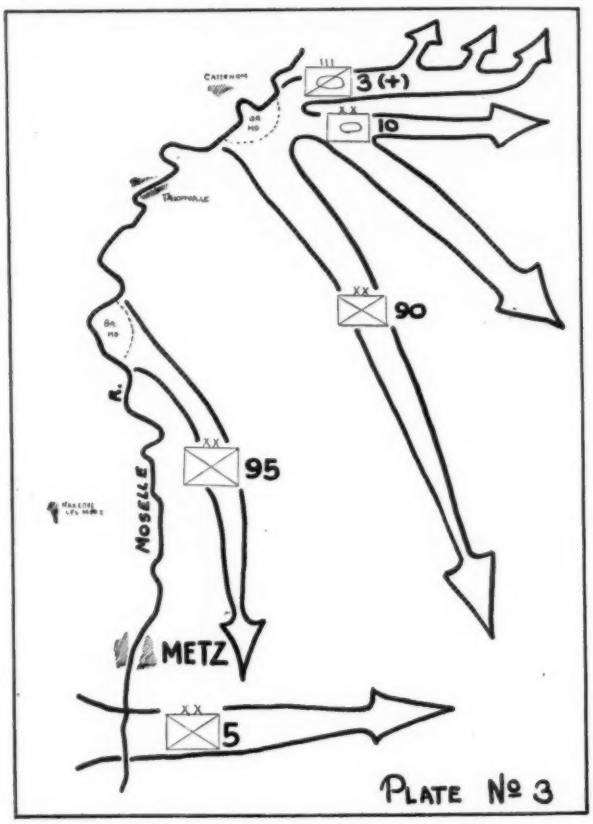
An engineer combat company, armed with M-1 rifles, possesses considerable defensive strength and each squad is also equipped with a water-cooled machine gun and a bazooka. In this situation, two companies were placed on line, two platoons supported the two squadrons, and one platoon was resting. By rotating these assignments, no engineer unit suffered any undue hardship. It is realized that such a use of engineers is wasteful of their skills, but when the situation demands, their training and equipment fit them for an infantry rôle, particularly in the defense.

Tanks: The tanks of the squadron should be held in mobile reserve and should not be rendered immobile by committing elements of the tank troops in the line as infantry unless absolutely necessary. This furnishes the squadron a local counterattacking reserve to coordinate with the reconnaissance troops covering their approach. It may be necessary to dismount men from the reconnaissance troops to act as close-in protection for the tanks from the enemy panzerfaust teams.

Machine Guns and Mortars: Mortar was placed in a good locality so that night firing was accomplished with minimum enemy interference. The use of the .50 caliber machine gun for night harassing fires was excellent, and in conjunction with harassing fires of the mortar, assault guns, and artillery greatly discouraged enemy action at night. The enemy was studied, and his habits discovered to ascertain which hours during the day or night were the most dangerous. The resulting deductions allowed fires to be intensified during the hours at which the enemy might be tempted to launch his attack. The light and heavy machine guns (with listening posts) were placed at strategic points along the river in positions to rake the river line with interlocking bands of fire. The 60mm mortar fired the only good illuminating flare used.

LPs and OPs: These cannot be overemphasized. Their skillful use were the crux of the successful defense of our river line.

Security Measures: In this operation, it was absolutely necessary that secrecy be maintained, and it was known that the enemy was identifying units by divisional insignia, bumper markings, etc. The following ruse was utilized successfully: All vehicles entering the critical area were painted with the 43d Squadron markings, because this unit was holding the vital sector. All other corps, and divisional insignia were removed. At the entrance of the critical area, a motor pool was established with all of the 43d Squadron vehicles. Reconnaissance parties stopped here, and proceeded with vehicles of this unit, unless their own vehicles were marked with 43d Squadron markings. Reconnaissance



was limited to a single vehicle and all parties were checked in and out through group headquarters. This plan of secrecy was divulged only to those who had to know.

A humorous situation arose when one of the soldiers insisted that a member of the corps artillery on a reconnaissance mission was a "spy" because the "spy" was riding in a vehicle marked "43C; B-19." The soldier insisted that it was a fake because he drove the bantam marked "43C; B-19." This is the type of secrecy that must be maintained.

This critical area was held successfully for approximately 6 weeks. On numerous occasions, the enemy sent reconnaissance and combat patrols into the sector, but they were either killed, captured, or driven off by an alert force. This was due in great measure to the individual alertness of the soldier, the rapid system of communications, and the maintenance of the manueverability of the force. Enemy patrols never found out if the Corps intended to attack in that portion of the sector.

When the Corps did attack on November 9 (Plate 3) the German PWs who were captured stated that the attack had taken them completely by surprise. A document captured later revealed that the enemy predicted an attack, but believed it would be made farther south. The defense of the river line and the counter-reconnaissance screen were successful.

Mounted Attack, Mechanized

—A unique cavalry action in which mechanized cavalry reconnaissance elements—operating mounted—attacked, overran, and completely destroyed a German infantry battalion dug in on a defensive line with supporting weapons.

by Captain Carleton P. Jones, Jr., Cavalry

ALTHOUGH the mounted attack is not generally recommended, in some instances and under special conditions it can be employed successfully by light mechanized cavalry elements. Here is one instance of a successful mounted attack from the records of the 113th Cavalry reconnaissance Squadron (Mecz).

Situation

The background situation for the action under consideration is important. The date was September 13, 1944. The German armies in the West were fighting for time—time to reorganize and equip their mobile formations and time to occupy the length of the Siegfried Line with fortress troops. Under the command of Lt. Colonel Allen D. Hulse, the 113th Cavalry Reconnaissance Squadron of the 113th Cavalry Group (Mecz), had fought the German rear guard across the breadth of northern France and Belgium, and by September was crossing the Meuse river at Liege in an advance north against stiffening resistance. (See Map 1.)

Map No. 1.

The 113th Cavalry Group had been attached to the 30th Infantry Division, and the 113th Cavalry Squadron (less Troops A and B in group reserve, and one platoon of Company F attached to the 125th Squadron) had been assigned a zone lying between the division left and the Meuse River. In addition, the squadron was charged with the responsibility of protecting the division's left flank. The cavalry mission was to destroy all enemy resistance in the assigned zone and to maintain contact with the left flank of the 30th Infantry Division.

The terrain in the squadron zone was generally flat; bounded on the east by high wooded ground, and on the west by the Meuse River. Observation was only fair by reason of numerous orchards and hedged farmlands. The Maastricht-Vise highway, the main axis of advance, was paralleled by a secondary road following generally along the Meuse River in the left of the zone.

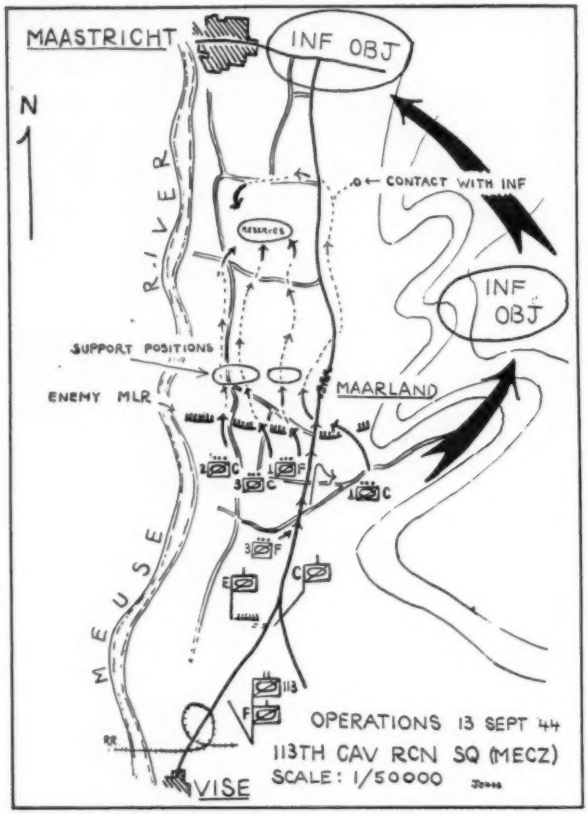
The execution of the squadron mission had fallen to Troop C, supported by Troop E in battery position. Company F, less one platoon, remained in squadron reserve. With two reconnaissance platoons abreast and astride the two main routes of advance, Troop C was moving north against moderate resistance. The 1st Platoon was on the right; the 2d on the left, and the 3d was in troops reserve. (See Map 2.)

Initial Attack

At 1000 hours heavier contact was indicated by the following radio message from Troop C:

> Troops fired on by EST 75mm A-TK gun in position vicinity ——————. No damage. Will adjust A/Gs.

Deciding to develop the situation by fire, Lieutenant Patrick J. Kilbane, commanding the 1st Platoon, Troop C, rolled his three armored cars into position, and the fire power of the platoon was soon brought to bear. The ensuing fire fight served to disclose a dual-purpose 20mm gun and 4 machine guns in addition to the known 75mm gun. Mortar fire commenced falling around the platoon's position. The enemy was disclosed to be in greater strength than had been expected, so Lieutenant Kilbane decided to withdraw slightly to the



Map No. 2.

rear to take stock of the situation. (See Maps 3 and 4.)

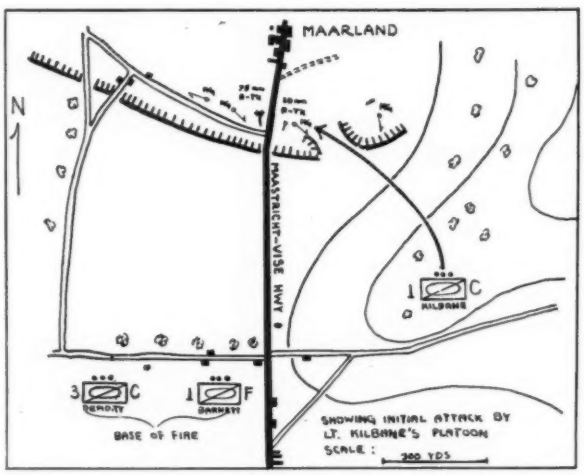
Lieutenant George L. Dana, the officer-observer for the assault gun battery, worked himself forward and started to adjust on the enemy gun positions. Lieutenant Kilbane radioed a brief estimate of his situation and was informed that his troop's 3d Platoon, under Lieutenant Richard S. Demory, was on the way to reinforce him and that the troop commander was also going forward. Lieutenant Dana scored a direct hit on the enemy 75mm gun then shifted to engage the 20mm. At that time Colonel Hulse with Captain Roy C. Jordan, Troop C commander, arrived on the scene of action.

It was decided to reinforce Troop C with one light tank platoon from squadron reserve. A brief message was encoded in prearranged message code and radioed back to squadron. The 1st Platoon of Company F under Lieutenant Roy L. Barnett was rolling forward before the confirming message was decoded. The assault guns were fired with deadly effect, and the 20mm and two machine guns were silenced. Lieutenant Dana then proceeded to work over the enemy position with time fire and tree burst while the commanders formulated a plan of action.

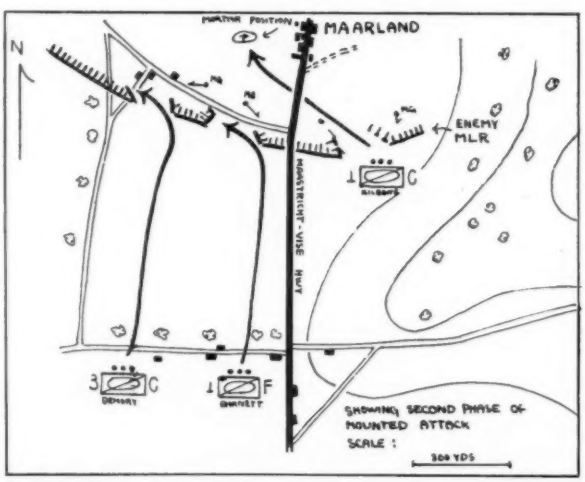
Mounted Assault

The plan, evolved quickly, was simple and direct. Lieutenant Kilbane was to swing wide to envelop the enemy's left. Upon a prearranged signal by radio he would then launch a mounted assault down the long axis of the enemy position. Initially the reserve tank and reconnaissance platoons would cover this movement by fire and move forward in frontal attack after the flank action was under way. The reserves arrived, and the plan was carefully explained to all commanders. Lieutenant Kilbane mounted up his platoon and moved out. (See Map 4.)

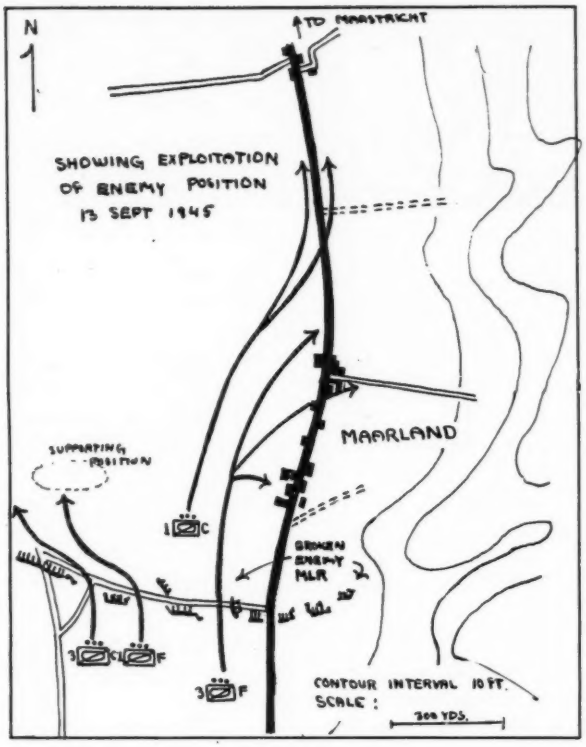
The flanking platoon moved approximately 500 yards to the flank and assembled in slight defilade. Lieutenant Kilbane placed the platoon in wedge formation, his three armored cars comprising the center, and his machine gun ¼-tons wide to the flanks and rear. The assault guns raked the enemy position with a last furry of time fire, and the machine guns and 37mms of the base of fire joined in to keep the enemy down. The signal to jump off was given, and Lieutenant Kilbane rolled his platoon forward while firing all weapons.



Map No. 3.



Map No. 4.



Map No. 5.

He talked to his platoon and by coaching them over the 508 radio, controlled their fire and movement. Within 100 yards of the enemy he began to use 37mm canister, which was very effective at that range and virtually cut a lane ahead of the advancing armored cars. Then the light tanks and armored cars of the base of fire commenced their coördinated assault.

The combined actions of the mounted platoons overrode the enemy positions, and shortly the enemy defense deteriorated into complete confusion as the cavalry, tanks, and armored cars, cruising up and down the position, cut down the now disorganized German soldiery. The position astride the main road was soon completely neutralized and 111 Germans remained alive to surrender; 74 of their comrades were not as fortunate. Casualties sustained by the 113th were two men slightly wounded.

Exploitation of Success

This spirited action tore a 400-yard gap in the enemy MLR (main line of resistance) and laid his defense open to exploitation. Further aggressive action was not long in coming. Lieutenant Kilbane was ordered to move his platoon through the gap and up the main road toward Maastricht. His mission was to make contact with the infantry, now reported about a mile east of Maastricht, and to shoot up enemy supporting positions and rear installations. Lieutenant Demory's reconnaissance platoon, which had been occupied with prisoner collection and disposition, was quickly reorganized and, with Lieutenant Barnett's light tank platoon, was committed in a westerly direction to roll up the broken enemy line of resistance. Lieutenant John W. Wright, commanding the 2d Platoon of Troop C operating in the left of the squadron sector, continued to punch at the enemy MLR. A second light tank platoon—the 3d Platoon of Company F, under Lieutenant Martin J. Grady—was brought forward from Squadron reserve and committed through the breach to seize and outpost the small village of Maarland, 300 yards behind the enemy line of defense. (See Map 5.)

The operation from this point moved rapidly to a conclusion. Lieutenant Kilbane rolled his platoon north with sections abreast up the Maastricht-Vise highway. At a point 2,000 yards north on the highway he dispatched a patrol to his right flank which succeeded in contacting the friendly infantry. This accomplished, he maneuvered deep into the enemy rear and turned south. There ensued a succession of very brief and one-sided actions, in which Lieutenant Kilbane's platoon took 119 prisoners, including the German battalion commander complete with staff. Operating as a team, units under Lieutenants Demory and Barnett rolled up the enemy position west from the initial breach and made contact with Lieutenant Wright, who by that time had broken the resistance to his front and was preparing to move on north. After a short action in which 30 prisoners were taken, Lieutenant Grady's platoon of light tanks succeeded in taking Maarland. His platoon then reorganized and outposted the village, while the main action swung north and took on the character of a mopping-up operation.

Prisoner evacuation became the first necessity of the day, and 6 x 6 trucks from the rear echelon were rushed forward, along with all available halftracks, ¼-ton trucks and armored cars of Squadron Hq. Prisoners streamed to the rear on this motley array of transportation until the final count swelled to 387. An estimated 150 Germans lay dead beside their foxholes. Casualties to the 113th for the entire operation were 5 men wounded, three of whom were back on duty within 24 hours.

In some instances and under special conditions, as in the action described, the mounted attack can achieve success. The action adopted in this case was based upon the assumption that the enemy morale would suffer in proportion to the gains of the 30th Infantry Division toward Maastricht. It was estimated that as the infantry approached Maastricht the enemy left-rear would be threatened and the enemy's position would become increasingly untenable. Canalized between the Meuse River and the advancing infantry, the enemy, with slight hope of reinforcement, would be mentally prepared for defeat. This was the train of thought that influenced all decisions and the foundation for the calculated boldness of attack that eventually proved successful.

Assault Guns

by Lieutenant
*Colonel Albin F. Irzyk**

Comment

LESSONS learned from the employment of assault guns in combat have resulted in the molding of these weapons into a small but potent fighting unit which has unobtrusively produced results far beyond those ever expected of it.

This unit includes the assault gun platoon and the assault guns of a tank battalion, of an armored division; and in spite of limited men and equipment, has saved time and lives. To make possible the admirable record of the assault gun platoon in combat, it was necessary to improve its organization, and to modify it so that it included the remainder of the assault guns of the battalion. Even though these changes were found satisfactory, a few more minor changes would make the unit a still more effective vehicle of war.

Suggestions for the modification of the Table of Organization, and for standardization of usage, will be discussed here, and will provide an answer to the numerous discussions and opinions, some at wide variance with others, on the manner in which assault guns should be committed.

As set up at the present time, an assault gun platoon consists of three medium tanks with 105mm howitzers, a platoon headquarters half-track, and an ammunition section mounted on a half-track. According to current publications, during movement in close proximity to the enemy, the platoon leader should ride in his half-track with battalion headquarters, keep abreast of the situation, and be prepared to make recommendations for the employment of the platoon.

Each medium tank company is equipped with an assault gun section consisting of one assault gun and trailer. It is preseribed that the assault gun section usually will operate with the company but, when not needed for direct support of the tank company, this section may operate with the battalion assault gun platoon.

During recent months in combat, a more satisfactory way has been found to employ the assault guns in a tank battalion. It is felt that because of its success, the procedure is worthy of consideration.

We found that the most effective way to use our assault guns was to group the three from the assault platoon tanks, and one from each of the three medium tank companies, into a 6-gun battery. This was actually reduced to 5 guns, as the platoon leader who commanded and fired this unit rode in one of the 6 tanks.

It was the responsibility of the platoon leader to do the forward observing and adjust and coördinate the fire of his platoon. He always accompanied the tank company, or companies, most likely to need his unit's fire. This usually placed him close to the commander of the leading tank company. On occasion he remained slightly behind to observe fire from a covered position, if such were available. He was always close enough to perceive and call for fire needed by tank companies, and to pick up targets of opportunity. The proximity of the assault platoon leader enabled the tank platoon leader and the company commander to call by radio for fire on a target. By operating in this manner, fire was quickly and effectively placed and a base of fire and close support was given not by one or two guns, but by what amounted to a battery of artillery.

In the meantime, the platoon was kept behind to take advantage of covered firing positions, and moved by bounds in order to be well within range for effective support of the lead elements.

Exponents of the use of assault guns singly, in pairs, or in two units of three each, may question what would have happened if fire was needed to a flank or to the rear, or by a company unaccompanied by the assault gun platoon leader.

The answer is, that the assault gun platoon leader operates his own fire direction center, and at the first opportunity adjusted his platoon on a crossroad, or some other well-marked terrain feature. Thus, although he believed that he was where he would be most needed, he could still bring fire to assist any other company. Whenever such fire was needed, a company commander or platoon leader simply gave the assault gun platoon leader a coördinate and the latter would direct the fire close enough to enable it to be adjusted onto the target by the person who called for it. When the fire support came it was an effective, massed fire, of unquestionable value.

Many disadvantages result when guns are used singly or in pairs. Each must have an observer to adjust and coördinate when used for indirect fire (which is rarely of sufficient strength to be effective). Moreover, when the firing is direct, a single gun or two guns can seldom accomplish more than the tanks themselves.

A company commander usually has enough to do maneuvering his company, employing his three platoons, and coördinating with the infantry that is generally with him, to concern himself with his single assault gun. This condition results in a tendency to

*8th Tank Battalion.

...lts from Combat

employ it as if it were another tank, or else neglect it. Moreover, when a commander does require assault gun support, he usually needs more than a single gun can furnish him.

We learned that when all of the assault guns were massed, the assault gun platoon could give close fire support quickly. In addition, it could relieve the artillery of close support missions, and when no more important missions were presented, it was used to reinforce the artillery.

Throughout the operations, the M10 ammunition trailers, a standard part of assault gun tank equipment, were not necessary, so by cutting them loose a great deal of mobility could be gained. The assault tanks were then able to follow the tank companies anywhere. It was no longer necessary to feel their way across country and pick spots where the guns could turn off the road without overturning the trailers. Abandonment of the trailers also enabled the assault tanks to go extremely well forward without the danger of ammunition being hit and set afire by enemy guns. It was no longer necessary for a tanker to dismount under fire to cut loose from a burning trailer.

A trailer normally carries from 54 to 100 rounds of ammunition and it was necessary to compensate for the stowage space lost. The regular ammunition half-track was supplemented by the command half-track, which was no longer used by the platoon leader. This provided the platoon with two ammunition sections. By careful and planned loading, 100 rounds of ammunition in fiber cases could be placed in each track. This, together with careful planning, proper anticipation of needs, and prompt calls to the ammunition section, kept the guns sufficiently well supplied. A self-constructed ready-rack built in each tank increased by 5 or 6 rounds the 66 normally carried. The great gains in mobility more than offset the slight loss of ammunition.

The advantages to be gained by keeping assault guns extremely well forward, where they can fire direct, has been frequently discussed. It has been found that such a practice can be carried to extremes. An assault gun does not compare with a tank as a weapon for direct fire. The assault gun lacks a power traverse and the necessity to do all traversing manually makes aiming dangerously slow. The 105mm mounted in the medium tank is a howitzer, and consequently is inaccurate when fired direct at ranges greater than 1,000 yards. The trajectory is very high, and often range changes on the gun result in no change on the ground, or worse, a minor change on the instruments often produces no change or a greater change than desired on the ground. If direct fire is to be accurate and effective the range cannot exceed 1,000 yards.

The lack of power traverse also makes it dangerous to place the guns near the head of the column, because they could easily hinder the movement of tanks moving forward into action.

It was found that the ideal position for the assault gun platoon was well forward, preferably with the advance guard, but behind at least a medium tank company. Here it could give prompt, close, and effective support; take a covered position not vulnerable to direct fire, and provide indirect fire. If emergency arose it could fire direct at close ranges, and prove a devastating opponent to any kind of an enemy concentration, including armor. This forward position also enabled the assault guns to blast road blocks and other such obstructions, a mission they performed more effectively than tanks.

In all of these actions the platoon leader was with the most forward elements, and served as the observer. It must be remembered that the assault guns are most effective when fired indirect. This is their primary mission.

The assault gun platoon works directly under the battalion commander, but is often attached to a tank company. This is highly recommended, especially when a company needs that type of support. Even when so attached, however, the platoon can give support to another company.

Although the employment of assault guns as discussed above was extremely valuable and effective, their organization can be improved upon by making a few changes in the Tables of Organization.

Recommendations

An assault gun platoon should have 6 assault guns: three from the three medium tank companies, plus the three originally in the platoon.

The medium tank companies should have no 105mm assault gun. Customarily they work with the assault gun platoon, and as a result well-trained assault gun crews from tank companies frequently were broken up by tank company commanders who needed a driver or gunner. If the assault tank is taken from the companies, it thus will cause no difficulties, and will make a smoother organization.

As a command vehicle, the assault gun platoon leader

should use a tank like that used by medium tank companies. In addition to the 6 assault guns and the one tank, the platoon should be equipped with two half-tracks as ammunition sections. There should be no command half-track. Each track should carry 4 men as operators and ammunition haulers. Under this TO, 5 men should be in each full track vehicle, plus an additional 8, 4 in each half-track, making a total of 43 men. Of these two should be officers (lieutenants).

The platoon leader should ride well to the front with the tank companies, act as forward observer, and operate his own fire direction center. The second officer should stay with the platoon, fire it, and move it into successive positions. He should care for its resupply of ammunition, rations, and gasoline, and its administration. Two officers are not absolutely required; as a capable platoon sergeant could perform the duties of the second. It is felt, however, that since the 6 guns constitute virtually a battery of artillery, the responsibility is too great for one officer and platoon sergeant to be required to shoulder.

It is recommended further that M10 trailers be deleted as part of the platoon equipment.

The platoon, although a part of Headquarters Company, works independently in combat, and should therefore be equipped with a ¼-ton C & R car with a 510 radio. It could be used for liaison and administration as well as for forward observation from a dismounted point in a defensive position, when the use of the command tank would make it vulnerable to enemy observation and fire. Two more men would be needed to operate this vehicle and thus bring the total of the platoon strength to 45 men.

The platoon leader's tank, and the assault gun used by the second officer or platoon sergeant both should be equipped with 508 radios in order to insure good communications. The second officer, or platoon sergeant, could run a fire direction center as well as the platoon leader, should he become a casualty. Each half-track and ¼-ton C & R car should be equipped with 510 radios.

Finally, a power traverse should be installed for assault guns—to speed up shifts of deflection, to enable the gunners to work faster in indirect fire, and to fire to the flanks and rear if attacked while in position.

Such changes in organization and employment of the assault gun platoon will make it a small effective fighting unit. As such it has already proven in combat that it is handy, important, highly effective and well-nigh indispensable

Reconnaissance in the Philippines

by 2nd Lieutenant Robert M. Hill

IT was at supper that the captain told us we would go on a patrol some time the next day.

"Guerrilla information," he said, "indicates a force of several hundred Japs in the vicinity of Nangongen. We'll take all available men and vehicles. Gas and rations for three days." Here was our order; our mission, the verification of the report.*

That evening we organized our equipment, put a couple of candy bars and tins of fruit cake in our musette bags, and read and answered our letters, if we were fortunate enough to have received any.

The following morning rolls, packs, and rations were tied to armored cars and peeps. Guns were recleaned and oiled. Six armored cars, 6 peeps, and the indefatigable half-track were lined on the road with 50 men and 4 officers. Every part of the troop was represented, including supply and kitchen.

We moved out at noon and traveling south on a fair road covered some 30 miles that afternoon. By 1600 we found our road leading west to our objective. Rain was coming down in torrents and rather than risk bogging down in a muddy river bottom, we organized a perimeter for the night around an old abandoned Filipino shack. Guards were posted, and we bedded down.

By 0600 the next morning, we resumed our mission. Our objective lay 14 miles west of the main road. We took the road west and for 4 hours sought by-passes, and winched or pushed vehicles across muddy quagmires, or swift, swollen streams, we labored vehicles up steep hills, and eased them down steeper ones. A feat to test Hercules, but by this time an old story to our troop.

After the first couple of miles, the road ended and from there on we followed a carabao trail. About noon fresh Jap tracks were found along the trail. We continued to push ahead, but became more cautious and, needless to say, more alert. From the top of a knoll (1), the lead peeps sighted our immediate objective. A signal was given and a quick perimeter formed. Observing the enemy activity to our front, a plan of attack was formulated. About 15 Japs had been sighted at a distance of half a mile, but our presence as yet was undetected.

The peeps moved forward with machine guns fully loaded, followed by the armored cars with one round canister and one of HE in the car commanders' hands. Lastly came the half-track, with mortar crews and mortars ready for immediate action. Here was sudden death

*Prior to this patrol our vehicles and men had been on the move for almost two months. Many men were restricted to the area for medical reasons and a good many vehicles had become unserviceable.

pounding across the soft, brown hillside upon the totally unsuspecting foe.

The lead peeps began a swift, deadly fire upon three nipa huts (2) on their left. The armored cars came up and moved into a supporting position, showering the huts with .30 cal. and 37mm canister. Six Japs were seen to run for cover, which they never made.

Suddenly we were brought under mortar fire from the vicinity of a large ranch house to our left front (5). By a series of quickly understood hand signals, the peeps and their crews headed for a draw on the left flank. The armored car commanders found partially defiladed firing positions on the right flank (3); the half-track brought the mortars up into a firing position in the center (4). The mortars were quickly adjusted on the rear of the house. All hell seemed to have broken loose for several minutes as .30 cal., .50 cal., and 37mm HE beat a deadly tattoo on the clapboard house, while 60mm shells exploded behind it. In return we received only sporadic mortar and rifle fire.

When the firing ceased the peep crews went in and the armored cars spread out to give all-around security. The huts and ranch house were ransacked, and American and Japanese machine guns, rifles, sabers, pistols, and other items were collected. An incendiary grenade then sent the huts and house into flames. Explosion on explosion boomed forth as grenades and land mines were set off by the heat of the flames.

We killed 15, estimated wounding a score, and destroyed the rations and equipment of well over 100 Japs. We had contacted the enemy, but he had scattered to the deep, dense hills on either side of us. Finally the order came for us to withdraw several miles and set up a perimeter for the night. The next day we continued to our ultimate objective on foot.

Conclusion: This patrol was our fourth across country. We covered 20 ground miles, making our own roads, fording shallow streams, or winching vehicles across deeper ones. The value of the winch for us has been the successful completion of our missions. Without this single item, we would have had to go on foot, losing speed, fire power, and surprise. *The armored* cars were excellent for cross-country work, whenever we found firm ground. The power was there, but not always the traction. A winch on an armored car would make them perfect for our operations. The "ole faithful" ¼-ton has no faults in our eyes, if it has chains on all 4 wheels and carries a tow rope.

35th Reconnaissance Troop Drives to Rhine

*by 1st Lieutenant Robert W. Woods**

DURING the Ninth Army's push across the Roer to the Rhine, the 35th Infantry Division drove north to liberate Venlo, then east to overrun Sevelen, Nieukerk, Lintfort and liquidate the Wesel pocket. For the 35th Reconnaissance Troop it was an 8-day mission full of action. First the troop prepared to throw 1,700 smoke pots into the Roer. Then as the situation became fluid, it drove north along the river, blazed a trail through dense minefields and scientifically constructed road blocks, participated in the liberation of Roermond and Swalmen in Holland, and finally protected the exposed north flank of speeding Task Force Byrne as it drove for the Rhine.

The smoking of the Roer fizzled. It was never needed. But the preparation and possibilities make a story. The 35th Division was to make a secondary crossing, a day after the XIII Corps, and on February 26 at 1500 the reconnaissance troop moved out. Attached to each platoon was a QM truck, and 500 smoke M4 and British land pots. The troop's mission was to dump 360 pots every hour at 6 points on a 3,000 yards front along a secondary stream paralleling the Roer at 500 yards. The pots were to be dumped on division order, but the order never came—a concrete bridge captured intact rendered the smoke unnecessary.

It was then that the troop's work really began.

Road to Roermond

With the 134th Infantry Regiment halted on the German side of the German-Dutch frontier, the reconnaissance troop received the mission of reconnoitering northward as far as the Roer River on the left flank

*35th Reconnaissance Troop.

and an east-west railroad on the right. Moving north out of Birgelen, 1st Lieutenant George Krumholz' 1st Platoon passed the last infantry outpost, and within 300 yards found a carefully laid minefield dug into the macadam road surface. There were 15 Regal mines staggered across the road and shoulders to a depth of 15 yards. Fields on both sides were mined. The mines, however, were neither camouflaged nor booby-trapped and were so spaced that bantams could thread a way among them, and armored cars could straddle them. So that is what they did.

In an hour, the platoon had progressed 8 kilometers through 5 similar minefields to the outskirts of Herkenbosch, in Holland, where they drew small-arms and automatic weapons fire. In the darkness the random fire-fight that followed forced withdrawal of the enemy from Herkenbosch without any known casualties, and the 1st Platoon, reinforced now by the 2d under the command of 1st Lieutenant Robert Woods, set up in the outskirts of the town.

At 1600, March 1, the 1st Platoon skirted the town and took off over unimproved roads to the north. The 2d Platoon started to clear the town, but was relieved by the advent of Troop HQ and the reserve platoon. The main road to the next objective, the Dutch town of Roermond, was effectively blocked by a prepared log obstacle, and all other roads out of the town were mined. After an hour and a half of false starts, a bypass was found, and the platoon started moving again along the main road.

In the next 8 kilometers from Herkenbosch to Melick, the 2d Platoon encountered 16 prepared minefields, all similar to the ones of the night before, and were able to straddle them in the same manner. In one cut where a horse-drawn supply wagon of the Germans had run over one of their own mines during the previous night, it was necessary to drag a dead horse through the mines to allow vehicular passage. At Melick, where the east-west road joined the main Venlo highway, three log roadblocks forced the platoon to use the sheer weight of the armored cars to bulldoze a way through barns and garages before the highway was reached.

At the northern outskirts of Melick, with no sign of enemy mines, the remaining 5 kilometers to Roermond appeared simple, but within 500 yards the platoon encountered an antitank ditch, which civilians reported ran for 15 miles to the east. It took only an hour for a dozen willing Dutch civilians to fill the ditch enough to allow the vehicles to pass.

Another 500 yards farther the platoon encountered and removed a conventional railroad tie and 10-inch I-beam erect roadblock by using a cement block as an "A" frame and the armored car for power. This procedure was repeated three times before the platoon reached Roermond. In each case a space was made wide enough for the bantams to pass and allow three machine-gun jeeps through, but each time they were held up by the next block. No mines were encountered on this road.

Roermond to Swalmen

All streets within Roermond were blocked by upright railroad ties, but none of the 10 such obstacles removed were mined or booby-trapped. Northward, progress through town was finally halted by a stretch of 200 yards where trees from both sides of the highway were felled across the road.

Passing to the east of the town, the platoon encountered another antitank obstacle, this time a ditch some 30 feet across the top and 15 feet deep. The only conceivably bypass was over heavily mined, cultivated fields. It seemed a hopeless situation, but Dutch gratitude was boundless that day, and within two hours a volunteer force of some 200 Hollanders had filled the ditch level enough to pass the platoon. It was strictly a shovel job, but two days later, when Roermond had become a back area, the MSR signs routed traffic over that make-shift fill.

North of town on the main road again, the platoon reached another 300-yard stretch of felled trees, which forced a bypass, and the only casualty of the day occurred. After filling a cratered section of road, the lead peep started across and was blown up by a mine buried under at least 4 feet of dirt.

The 2d Platoon of the 35th Reconnaissance Troop was not the first American outfit in Roermond; the 15th Cavalry had sent boat patrols across the river the previous night, but the 2d Platoon was the first unit to ride in on wheels.

Meanwhile, the 1st Platoon, while picking up scattered prisoners and encountering numerous mines, had progressed north to its phase line; and after an hour's wait there, it was ordered on to Swalmen, 8 kilometers north of Roermond. It reached the town without opposition and had started pushing north to Venlo, 19 kilometers to the north, when it was ordered to outpost the town for the night.

During this time the 3d Platoon, which had followed the 1st Platoon's route, had removed 85 Teller and Regal mines from the road and cleared a path that the 15th Cavalry Group followed when they relieved the troop at 2000 that night. The group, unable to follow the Melick route into Roermond, came into town from the east with the loss of at least one armored car and one bantam.

Flank Protection

On March 2 at 0800 hours, the reconnaissance troop assembled at Herkenbosch and moved administratively to Bracht in Germany. There it was ordered to provide left flank protection of TF Byrne which had swept through Venlo and was then fighting for the town of Straelen. As that unit rolled through Straelen heading east, without clearing out the town, the 1st and 3d Platoons of the recon worked their way through the town to the northern outskirts. While outposting

there for the night, the two platoons received heavy fire from a German SP piece that maneuvered several hundred yards north of their position. The next morning infantry cleared the buildings up to the outposts. At 1900 that night the 2d Platoon moved to Nieukerk, where the leading elements of the task force were fighting, and outposted along the road three kilometers to the north.

By the next morning TF Byrne had reached the outskirts of Sevelen, and the 3d Platoon, continuing on its flank security mission, moved north of Nieukerk 6 kilometers to the line of an east-west railroad. Stopped there by a blown overpass, the men were confronted with scattered small-arms and mortar fire from a woods to the east, but managed to hold the flank.

The 1st Platoon moved into Sevelen with the TF and, with a secondary mission of contacting the British, moved north but were halted by light small-arms and heavy SP and mortar fire almost at the town's outskirts.

The 2d Platoon, operating over a road midway between the other two, moved north until it reached a railroad bridge mined and prepared for demolition. On the way the troops had picked up a Polish refugee who was now sent into town on foot to find out how heavily the town was held. When the Pole returned with the local priest, the platoon leader—using major strategy in a minor way—set up all his mortars, pulled the AC37's into position, and told the priest that unless all soldiers in the town were marched out, the town would be reduced to rubble. The ruse worked—a ruse because of the lack of supporting artillery—and 18 prisoners marched out.

The mined bridge, however, was still there. Through the interpreter the platoon leader discovered that 5 of the prisoners had mined the bridge, so under Sergeant Carl V. Bell's supervision the prisoners removed the mines and cut the demolition wires and to make sure, the lieutenant then ordered the German soldiers to stand on the bridge while the lead jeep drove over. The bridge was OK.

At 1700 that night the 15th Cavalry Group passed through the troop's positions and assembled at Nieukerk. The day's work had netted 58 prisoners taken as against two casualties suffered by the troop.

Reconnaissance for Division

On the morning of the 4th the troop was given a contact mission on the division's right flank, which had become exposed by the forward surge that had taken them to within 10 kilometers of Rheinberg. No locations of any friendly units on the right were known, so while the 3d Platoon provided immediate security, the 2d initiated patrols which by 1300 had contacted elements of the 5th Armored Division in Vluyn and established forward locations of CC A within a few kilometers of the Rhine. As a result of this information, previously unknown to division or corps, a shift was made in division objective, and the ensuing rapid liquidation of the Wesel pocket was accelerated.

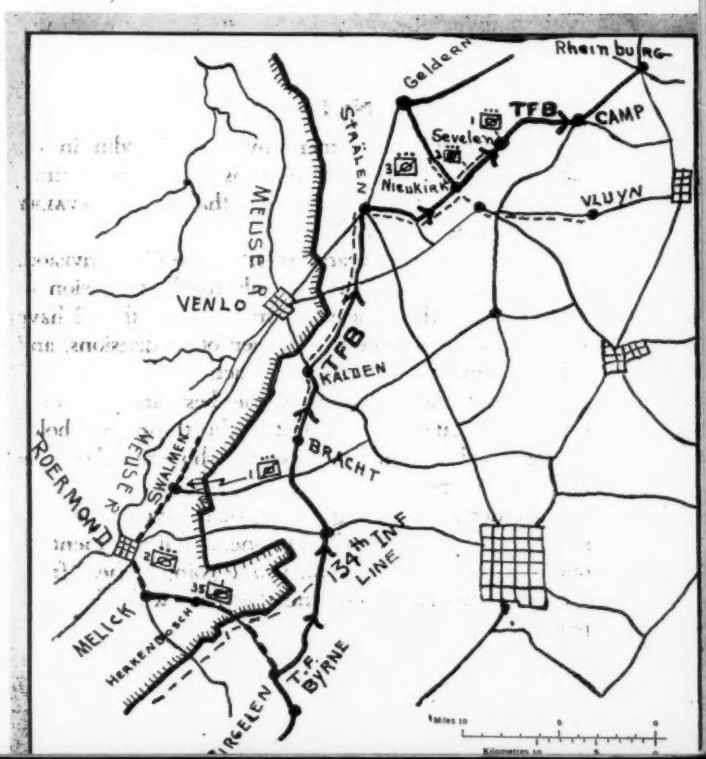
At 0200, March 5, the troop was withdrawn to division reserve, and its small but vitally important part of the operation was completed.

In the initial phases of the operation the troop had found the area in close proximity to the Roer River heavily mined and obstacles painstakingly prepared, but because of the rapid pursuit and consequent hurried withdrawal of the enemy, no mines were booby-trapped. In some instances, dummy blocks of wood instead of mines were inserted in the slots chipped out of the macadam surface. Despite engineer warnings that the Regal mine might be detonated by tilting, many were removed by hand and lifted off the road—although the predominating method of removal was by means of a long rope.

The movement through Holland was greatly facilitated by the attachment of civilians who spoke presentable English. Their knowledge of minefields and road blocks saved hours of experimenting. Through German territory the friendly Russian and Polish slave laborers aided in the same manner.

The 35th Reconnaissance Troop (Mecz) is a D plus 30 unit which went through the hedgerows of Normandy, withstood the German breakthrough at Mortain, and broke east from Le Mans to spearhead the race across France. The troop operated day and night miles in advance of supporting units and at one time was strung along a 90-mile stretch of the Loire River, with communication from Troop HQ relayed from section to section.

The troop has experienced every mission conceivable for a small cavalry unit—contact between divisions advancing in close proximity on a front, and between divisions 20 miles apart, front reconnaissance, dismounted patrols, flank security, and screening.



Editorial Comment

To the 1st Cavalry Division

THIS is an unofficial commendation. It is not from the War Department in recognition of deeds of valor and bravery on the field of battle. It does not authorize the wearing of a ribbon or medal, but you can be just as proud to receive it as if it did.

It was written by Reverend Father Hurley in a letter sent home after his liberation. For three years he was the "strong man" of Manila, defying the Japanese in their efforts to oppress American citizens. Although he protests that he is still the same hard-boiled, unemotional man, his tribute to you of the 1st Cavalry Division speaks for him. It also expresses the thoughts of every other man, woman, or child who was liberated from Jap cruelty and torture by your brilliant and daring dash into Manila.

In what better way could be answered the war-old question—"Why do we fight?" than by the following words of Father Hurley, extracted from an article published in the *Jesuit Mission Magazine* for April, 1945, by Reverend Father Calvert Alexander (S.J.)?

"God bless all Americans, but especially the magnificent 1st Cavalry Division—which made this brilliant and daring dash into Manila. No words of any living man could possibly exaggerate the magnificent character of our deliverers. Of course, they are big, muscular, hard-as-rock, magnificent specimens, but that, of course, is taken for granted. The feature that has impressed us all—swept us off our feet and put these men in our hearts forever—is the unbelievable kindness, consideration, thoughtfulness, gentleness, tenderness toward us."

No Partiality

THE following statement by Bill Mauldin in his recently published *Up Front* is also a very accurate description of the predicament that THE CAVALRY JOURNAL now finds itself in:

"During the three years I spent in the 45th Division, I was certain that it was not only the best division in the army, but that it *was* the army. Since then I have kicked around in more than fifteen other divisions, and I have found that the men in each of them are convinced that their division is the best and the only division. That's good. *Esprit* is the thing that holds armies together. But it puts people who write about the army on the spot.

"In order to do the right job, you'd have to mention six other outfits if you talked of one, and if you mention one battalion in a regiment, you're going to hear from the other two battalions, and the same with the companies."

We have no desire to slight the experiences of any unit, or to publish more of the exploits of one unit than we do of another, but it so happens, that in spite of our frequent requests, all units have not supplied us with material.

We are extremely anxious to find out what you and your unit has learned in battle that may be of value to other troops. They want to know of the engagements in which you participated, what was done, why it was done, how it was done, and what might have been done differently to advantage.

Postwar Educational Program

WITH the cessation of hostilities on the Western Front the army inaugurates another educational program which will apply to the European, Mediterranean and other inactive theaters of operation. Academic and vocational instruction will be offered at upper elementary, high school, technical school and college levels.

With approximately 500,00 enlisted men in the army planning to return to full-time school after they leave the army . . . accreditation of military training experience and army off-duty education will also apply to educational experience gained in the overseas program. In addition we must realize that informal, general educational benefits are gained by many men and women in the armed forces through travel in new localities and countries through observation of the customs and cultures of other peoples, and through other experiences gained in the service. Because the resultant educational development and growth may not appear on their service records, the army has provided for special examinations, the findings to be reported to civilian educational institutions.

From speech by Under Secretary of War Robert P. Patterson.

Mr. Tinio

Hq, XI Corps Arty,
APO 471, c/o P.M.,
San Francisco, Calif.,
27 May 1945.

Editor, CAVALRY JOURNAL,
Washington, D. C.

Dear Sir:

Almost all cavalry officers formerly with the 26th at Fort Stotsenburg, Philippine Islands, were acquainted with a Mr. Tinio, well-known Filipino businessman.

At the outbreak of the war wide circulation was given a report that Mr. Tinio had been in the employ of the Japanese and was executed by the Americans. To correct this report, which officers came to believe with difficulty, I suggest you carry the following item in the JOURNAL:

"Cavalry officers and families formerly stationed at Fort Stotsenburg, Philippine Islands, will be interested in the following information received from a general officer now in the Islands. It concerns a Filipino merchant who had a wide acquaintance among army personnel:

" 'Shortly after the outbreak of the war a rumor was circulated throughout the army that Mr. Tinio, of Angeles, Pampanga, had been executed as a Jap spy. This was completely false. He has not been under suspicion, is alive and is considered loyal to the United States. His wood-carving factory, store and home were demolished and all his business records lost. He is attempting to rebuild his business.' "

Respectfully,

GEORGE V. KEYSER,
Brigadier General, U.S.A.

Horse Show Restrictions

Editor,
THE CAVALRY JOURNAL:

"The editorials of some of the leading publications in your field indicate that a misconception of the program of this Committee exists insofar as it pertains to horse shows. There *are* restrictions on horse shows, just as there are on dog shows, field trials, pet shows, and other similar events. In fact, these restrictions have existed since February 1, 1945, and they have never been modified or realized.

"Under these restrictions, it is the responsibility of every organization sponsoring a horse show to file an application with this office requesting permission to hold the event. The purpose of this application—Form WCC-1—is to enable this Committee to determine whether or not the specific event for which application is made, is of the type which conforms to the Committee's policy.

"In order to qualify, the show in question must be purely local in nature. All attendance, entries, and exhibitors must be drawn solely from the city in which it is held, or from the suburban area. If it is held in a rural community, the attendance, entries, and exhibitors must reside within that community or its normal local trading area.

"All horses entered in the show must be owned or domiciled within the local area as defined above. The judges and handlers must also reside within that area. If no qualified judge is available locally, the Committee interposes no objection to one judge from outside the local area.

"Application must be filed for each show not less than 30 days before it is to open, and with the application must be filed a list of all entries and exhibitors, giving the name and address of each. Otherwise, it will not be possible for the Committee to determine whether or not the show is purely local.

"Sponsors and show managers who fail to follow this instruction not only invite public criticism as evaders, but also run the risk of being instructed by the Committee to call off their shows.

"The War Committee on Conventions is an intergovernmental agency comprised of the Under Secretaries of War and of the Navy, the Chairman of the War Production Board, and the Deputy Director of the War Manpower Commission. The Director of the Office of Defense Transportation is the Chairman of the Committee. It was set up by the Director of the Office of War Mobilization and Reconversion.

"It is our belief that the horsemen of America would be the first to disclaim any desire to obstruct the war effort by disregarding a government request to reduce their shows to a scale which will not interfere with transportation. The men and women who attend these shows, or who participate in them, pride themselves upon their tradition of sportsmanship—that means playing a fair game according to the rules.

"The 'local show' requirement is a rule that horse shows *must* comply with for the duration so that, in your own words, we can 'keep America traditionally American' and 'bring our boys back.' Every show which breaks this rule helps to defer victory and threatens to hinder the return and redeployment of our troops.

"Very truly yours,

"FRANK PERRIN, Secretary,
"War Committee on Conventions,
"Washington, D. C."

Errata

IN the article "Maneuver Formations for the Cavalry Division Artillery," by Colonel H. C. Demuth, January-February, 1945: Page 62: Under diagram of Formation C the last sentence of caption—"Interval decreases effect of air bombing"—should have appeared under Formation B diagram.

Also fourth line from the bottom of the page, right column, should read: "This interval in Formation B" (instead of Formation C).

Under the picture on page 12, May-June, 1945, issue, the picture caption should have read "a dug-in M8 armored car" instead of "a dug-in tank."

General Hawkins' Notes

The Germans Had No Cavalry

MARSHAL ZHUKOV, generally regarded as the outstanding Russian general of World War II, is quoted as having said that one of the important reasons for the defeat of the German armies in their attack against Russia was that they had no cavalry. This statement is not surprising, because, to the careful observer, the fact was obvious from the early months of the war, in 1941, to its conclusion in May, 1945.

When Germany attacked Russia in June, 1941, most American military and civilian observers thought that the Germans would defeat the Russians, capture Moscow and end the war in a few months, except possibly for roving guerrillas and underground movements. They expected the blitz war, so successful in Poland in 1939, and in France in 1940, to be equally successful in Russia. Early victories over the Russian armies seemed to justify this opinion. The great tactical maneuver called the *Wedge and Kessel* about which the Germans so happily boasted, seemed to bring invariable success and victory, and resulted in heavy Russian casualties and the capture of thousands of prisoners. The principle of the *Wedge and Kessel* was based on superiority in armored forces, which drove a wedge through the Russian lines to a depth of 10 to 20 miles. The armored columns then turned to the right or left, or to both flanks, encircled thousands of Russian troops, and either destroyed or captured them. This required great depth in the formation of armored columns, and close support by rear elements composed of infantry.

When the Russians came to understand this type of maneuver, they deployed their defense in great depth, and sent mobile troops around the flanks and to the rear of the wedge. These mobile troops, composed principally of cavalry and light tanks, were equipped with numerous antitank guns. Until it became equipped with more antitank guns and artillery, the Russian infantry in front and near the flanks of the German wedge fell back to prevent encirclement. Although these tactics prevented Russian units from being engulfed by superior German armored forces, it forced the Russian armies to retire deeply into their own territory. The Germans advanced to within a few miles of Moscow, where, to their own surprise, as well as that of the western Allies, they were finally stopped. The Russians attacked the German armored spearheads in front with artilley fire, and the flanks with cavalry and antitank guns. The Germans were severely defeated, and Moscow was saved. The German armies in the south, however, advanced as far as Stalingrad, and into the Caucasus. The Russians by this time had increased their strength in artillery and antitank guns. Their great stand in Stalingrad is a famous episode in history. The repulse of the Germans at Stalingrad was followed by the great Russian offensive operations, during which strong columns of Russian tanks in combination with cavalry encircled both flanks of the German Sixth Army, and later destroyed it. It was then that we commenced to hear of Russia's famous tank-cavalry teams.

The Germans failed to take Moscow in 1941 largely because they lacked enough cavalry to protect the flanks of their spearheads against the attacks of the Russian cavalry. The subsequent German disasters, which occurred after their defeat at Stalingrad, were due in large measure to the activities of the Russian tank-cavalry teams and the lack of German cavalry which might have neutralized their efforts.

During 1942-43-44, Russian cavalry, in combination with tanks, played a very important and decisive part in driving the Germans hundreds of miles back, out of Russia into Rumania, and through Poland. During the winter months of these years, Russian cavalry was engaged constantly in raids upon German communications.

In 1943, the Germans began to appreciate the self-imposed handicap of their lack of cavalry, and attempts were made to reconstitute some of the cavalry divisions which had been suppressed when they undertook to conquer Europe by means of the blitzkrieg. These efforts to improvise cavalry during a serious war were futile. It was impossible to organize and properly train enough cavalry in time for it to be of any use.

Meanwhile the Russian cavalry became more aggressive, and confident of its ability to oppose any kind of German troops. It openly boasted that a regiment of cavalry had nothing to fear from a regiment of German infantry or tanks. Its equipment had been improved with mobile and effective antitank guns and mortars. They already carried rifles, Tommy guns, grenades, machine guns, swords and pistols, and had learned how to use these varied weapons to meet different situations.

The Germans had no cavalry. Their mechanized blitzkrieg had worked well against improperly prepared Polish armies in 1939. They overwhelmed Holland, Belgium, and France in 1940, and Norway and the Balkan States were speedily conquered. The armored forces of Germany appeared invincible, because there was nothing to oppose them. So why should they bother about cavalry?

But their day of reckoning was coming. They still had to defeat Russia. Russia had been watching and

was frantically making antitank guns, artillery and tanks. Their 60-odd divisions of cavalry were being equipped with modern weapons and more divisions were being formed. When the Germans attacked in 1941, the Russians were not quite ready. Preparations had not been completed, but from the very beginning they threw their cavalry into the fight and succeeded in preserving their armies from destruction. Then, when they were ready, they turned upon the Germans with results so successful as to gain the indebtedness of the rest of the world. The war in Europe could not have been won without Great Britain and America, but it is also true that it could not have been won without the victories of the Russian Army.

Could these victories have been won without the Russian cavalry? Could they have been won if the Germans had provided themselves with a cavalry force of several hundred thousand? Germany had everything else in great abundance—infantry, artillery, all auxiliary arms, air forces and armored forces. They certainly expected to win the war quickly with these mechanized forces, before their enemies could awaken to the necessities of modern war, or could equip themselves.

That the Germans had suppressed practically all of their cavalry was most fortunate for the Russians and for us. British and American armies fought the Germans in Tunisia, Italy, and in western Europe with no cavalry other than some mechanized cavalry reconnaissance units. It was fortunate for us that the Germans had no cavalry there either.

During the tremendous sweeps made by our armored forces through France, Belgium, and Germany in 1945, the Germans constantly were being caught by surprise because they failed to guard against surprise. German cavalry could have operated across country and between the roads to attack us on our flanks or ambush our road-bound armored troops. They were without means for fighting delaying actions properly, however, because they were without cavalry. They were forced to fight on roads and in the villages through which roads ran and American columns had no fear for their flanks. American tanks could outflank defenses of a German village by moving a short distance off the roads. If we had been fighting cavalry-minded Russians the situation would have been far different.

It is not pleasant to contemplate what the Germans could have done if they had had a large force of cavalry available when they broke through our lines in the Belgium Bulge. I have written in previous "Notes" about what might have occurred had we had cavalry in the Bulge, and also in other theaters of operations in Africa, Italy and western Europe. Under some conditions, cavalry could not have kept up on the roads with armored forces, but it would have been available when real resistance was offered, and highly useful to precede the infantry, which followed behind the armored forces and dealt with points by-passed by the armored troops in their rushes along the roads.

The lack of cavalry hampered the Germans in almost every theater of the war. It might have been difficult for us to bring cavalry across the oceans, but the Germans could have had it, had they not expected mechanization to do everything. Bad and stupid military counsels prevailed in Germany in many respects, despite their demonstrated efficiency in many other ways. Their failure to provide themselves with a strong, numerous and modern cavalry was one of their egregious mistakes of the war.

THE following are excerpts from statements made by General George S. Patton, former cavalryman, when he appeared before the War Department upon his return from Europe:

When asked by Secretary of War Stimson to talk about horses, Patton said—

"If we'd had a brigade or a division of horse cavalry in Tunisia and Sicily, the bag of Germans would have been bigger because cavalry can conduct a pursuit faster than infantry." He added that it was simply a question of speed and mobility. As good as U. S. armor was, the General continued, the war still could have used some horses.

He said this was so because:

"An advancing infantryman goes, say, N miles an hour. A retreating soldier goes N plus one miles. So the man going N miles an hour can't catch him. But a man on a horse can go N plus three and get him."

He then laughingly told of how he extemporized some cavalry once in Sicily: "900 immortal heroes" who rode jackasses, bulls, and anything else that resembled a horse.

This bizzare outfit was formed, Patton explained, because the army had no regular cavalry there—and because cavalry comes in handy.

A superb horseman himself, the General said that while there is hardly an American who cannot drive an automobile, there were few who could saddle a horse.

By illustration, he told of meeting one of the "immortal heroes"—an officer—astride a jackass which had been saddled on the withers. The officer wanted to salute Patton and thought that regulations required that the jackass first be halted.

When the jackass stopped, it lowered its head and the officer toppled over on its neck.

"Does that happen often?" Patton said he asked.

"Every time I stop," the officer replied.

Patton said he asked the officer where he had learned to saddle a horse and that the officer replied that he had never saddled one—in fact, the only animal he had ever ridden was an elephant.

"And you ride on the elephant's head," Patton quoted the officer as saying, concluding that this should illustrate what a hard task it is to improvise cavalry.

Soviet Cav

by Colonel I. Pronin

Beyond the Oder, Soviet cavalrymen move along roads of German Silesia, penetrating deeper into Germany. Flank movements by such units seriously hindered the enemy.

Below: **Cossack gunners on their way to firing positions.**

Sovfotos

IN spite of all the modern means of warfare employed by the armies of today, Soviet cavalry proved to be an equally powerful force, both in defensive and offensive operations.

In the early phase of the war, Soviet cavalry, with other branches of the Red Army, bore the brunt of the German onslaught. Troops fought bravely, and were able to deal costly blows at the flanks and rear of the enemy.

In August, 1941, cavalry under General Dovator breached the enemy front in the area of Podviazyeustye, cut communications and disrupted the enemy's control. The German Sixth Army was forced to change its headquarters several times within a day, and such fear and panic were created in the German camp that the enemy asserted that at least a "hundred thousand Cossacks" were operating in his rear.

In September, 1941, mobile units of the Wehrmacht sought to attack the Soviet flanks and rear, in the vicinity of Shtepovkasalo, where a wide gap divided the armies of the southwestern front. Cavalry units under General Belov routed this superior force.

The Nazis launched their second general offensive toward Moscow in November, 1941. Hitler massed 51 divisions for the operation, 13 of which were Panzer and 5 motorized. Soviet cavalry played an important part in the final rout of this army. Troops of General Belov particularly distinguished themselves, and dealt the first counterblow against the Second Tank Army.

The final stroke which forced the enemy to retreat was eventually delivered by General Guderian's Corps in a coördinated attack with other arms near Tula. After the Germans were defeated, Soviet cavalry units were immediately used to pursue the enemy, destroy his manpower, and make his battle technique ineffective. Cavalrymen then took the towns of Stalinogorsk, Kozelsk, Belev, and Masalsk, and by striking at communication lines of the enemy's Fourth Army, forced its retreat to the south. The Second Tank Army had almost ceased to exist after the rout near Tula and only remnants of the crack divisions escaped.

Soviet cavalry played a singular rôle in the great battle near Stalingrad, when the German Sixth Army of 330,000 was surrounded and entirely liquidated. In this operation strong cavalry units took part in the encircling movement, as well as in attacks on the enemy flanks. Operating with tank units, they accomplished the most responsible part of the action which eventually closed the circle around the enemy. Subsequently the cavalry routed enemy units which broke through the ring, and also attacked reinforcements which the Germans sent up. When the Red Army assumed the offensive after the route of German troops at Moscow, Stalingrad, and in the Caucasus, *the cavalry, as well as*

While infantry attacked the front of the enemy positions, cavalry in coöperation with other mobile forces, developed break-throughs and operated *far in rear* of the enemy.

★By cable to THE CAVALRY JOURNAL from War Department, U.S.S.R., Moscow, June 26, 1945.

alry in World War II*

As an example of this type of tactics, in January, 1943, cavalry units of General Sokolov were pushed into the gap which had been made in the enemy positions at Pasukovklenovi. They penetrated to a depth of 200 kilometers behind the enemy lines, and in 5 days of fighting seized Valuiki and Urazoy. Strong enemy garrisons were annihilated, operational communications were cut, and supply bases destroyed. The foe was forced to begin a disorderly retreat, but cavalrymen infiltrating behind him, headed him off and turned the retreat into a rout.

When the enemy's front was breached in the Mius River sector August 1, 1943, a mechanized cavalry force rolled through the gap and emerged in the rear of the group at Taganrog. Here, in conjunction with troops of the southern front, it surrounded and annihilated the enemy. This operation cleared the road to Donbas, and resulted in the destruction of the vital enemy springboard which had constantly threatened Rostov, the gateway to the northern Caucasus and the Volga River.

Near the end of 1944, the Second Urkainian Army encircled strong enemy forces at Zvenigorodka. Fighting inside the ring, cavalry units under General Selivanov conspicuously distinguished themselves.

Kuban Cossacks under General Pliyev proved especially valuable in operations on the Third Ukrainian front when they surrounded and wiped out the enemy at Snigerev.

In the Odessa operation, in April, 1944, Cossacks of General Pliyev,* in coördination with mechanized forces, struck at Razdelnaya, split the enemy front in two, and in a dashing attack, took Razdelnaya. The Germans were taken so completely by surprise that they threw down their arms and retired in panic to the west and southwest. Following up this success, the Cossacks then broke through to the coast, south of Odessa, cut escape routes and, with other units, liberated Odessa.

In June, 1944, the troops of General Oslikovsky's Corps, operating on the Third Belorussian Front, were thrown into a breach in the area of Bogushevsk in order to divide the enemy groups at Vitebskorsha, and to secure a bridgehead on the bank of the Berezina River.

Cavalry accomplished both tasks. After turning the enemy flanks on the north and northwest, it combined with other units to capture Bogushevsk. On the fiftieth day of the operation, cavalry seized a bridgehead on the Berezina River, north of Borisov. In coöperation with mechanized troops, it continued in pursuit, captured the towns of Vileika, Molodechno and Krasnoye, and cut up enemy groups at Minsk and Vilnius. These victories created a situation which later permitted the encirclement and capture of Minsk. Soon afterward the towns of Lida and Grodno were occupied and the troops reached east of the Russian border. Soviet cavalry operated with exceptional success and courage in Belorussia, where the rout of the central German group (which was covering the strategic road to Berlin) made a catastrophe inevitable for the German Army.

Utilizing their war experience to the utmost, mounted units dealt the enemy crushing blows, cut his communications, harassed his flanks and penetrated deep to the rear. Cavalry, in conjunction with other arms, took the strong points of Allenstein, Bromberg, Beuthen, Lodz, Maskow and Kalisz, and penetrated into Brandenburg Province, where Schwerin neu Dorf and Meseritz were captured. In the final phase of the war in Europe cavalry took part in battles for Berlin, and participated in action in the south, and also in the capture of Budapest and Vienna.

Nearly all Soviet cavalry units have now earned the right to be named *guards* units, an honor bestowed only on units which have distinguished themselves in battle.

*See "General Pliyev's Cossack Guards," THE CAVALRY JOURNAL, July-August, 1944.

Soviet cavalry, which proved equal in power to any means of modern warfare, is shown on the shore of the Baltic Sea.

Sovfoto

Tactical Air Power

In Europe*

ON the morning of 7 August 1944, two weeks after the First American Army had broken out of the Normandy beachhead at St. Lô, the front was visited by a certain German General Warmilont, Hitler's personal representative. The Germans had been attacking savagely for days in an attempt to close the gap and cut off the American forces which had been pouring through to the south. Warmilont undoubtedly was dispatched to find out why this had not been done. The sentiments he brought with him from his Fuehrer unfortunately have not been recorded. But the blast he got back from Von Kluge, commanding the German armies, was:

"Whether the enemy can be stopped at this point is still questionable. His air superiority is terrific and smothers almost all our movements. At the same time, every movement of his is prepared and protected by his air force. Our losses in men and equipment are extraordinary. The morale of our troops has suffered heavily under murderous enemy fire, especially since our infantry units now consist only of haphazard groups. Behind the front, terrorists, feeling the end approaching, grow steadily bolder. The Eighty-fourth Corps has reached a certain degree of disintegration . . . fresh troops must be brought in . . . from somewhere. . . ."

General Warmilont fled from this melancholy recitation. How he later prepared the bitter pill for consumption by his carpet-chewing chief will never be known. But two things were certainly as clear to him as they were to the other German generals. The Luftwaffe was nowhere to be seen, having failed utterly in its greatest crisis. Without it, the mighty Wehrmacht was being dissected by an enemy ground force no greater than itself and with considerably less battle experience, but made irresistible by the addition of American tactical air power.

German Advantages at the Start

This scarcely resembled the situation of a scant four and a half years earlier. The Germans had started the struggle with all the advantages except three. Their political, economic, and sociological structure had been carefully shaped for war for a number of years. They had the best equipped and most efficient (if not the largest) army, by far the largest and most powerful air force in the world. They were surrounded by smaller, weaker, badly prepared neighbors. Of the great powers which might possibly constitute a threat to them, one, Russia, was an enigma whose military ability and industrial efficiency was open to question; the second, Britain, was involved in trying to hold together a sprawling empire by political rather than by military persuasion, and had no army nor air force worthy of mention (her fleet was powerful, but Germany intended to fight this war on land and considered herself impervious to blockade); the third, the United States, was thousands of miles away and woefully unprepared.

Of her three disadvantages, Germany was aware of one. She was smaller than some of her potential enemies, but she depended on her speed of conquest to enlarge both her manpower and her resources to a point

B-26s, which became the chief medium bombardment weapon on the Western front, here roar over Annweiler, where a column of smoke rises from a previous strike, as they head deeper into the Reich to hammer at other targets.

**Impact*, May, 1945.

where she could safely ignore this handicap. Moreover, she leaned heavily on what she thought was her superior air force.

The Spitfire and Radar

The second disadvantage, and one she was unaware of, was the lack of anything to contend successfully with two British items, the new Spitfire and, more important, radar. German intelligence didn't know about radar and couldn't get the full story on the Spit. Britain had come to the correct conclusion that she could not be invaded as long as she controlled the air above her. Hence, the Spit: heavily armed and swift, designed exclusively for the destruction of other planes in the air, made enormously efficient by radar. Against German aircraft that had insufficient armor and armament, the result was massacre. The German failure against the Spitfire-radar combination may well have cost Germany the war. It certainly for a long time ended her offensive ability in the west.

The third disadvantage was rooted in her concept of how the war would be fought, and was, in essence, an insufficiency in the realm of ideas. Her air force was (and its remains still are) purely tactical. Her air planners did not discern the huge dividends that can accrue from a carefully planned strategic bomber offensive against the key industries that support ground armies.

After the Battle of Britain, it was apparent that, given time, Germany could be expected to reshape her air force and return to the attack. It therefore was clear that the war was only to be won for our side by wrecking German war industry with air blows and by invading the continent and defeating the German armies in the field. But Britain was small and the resources of her empire were at the ends of the earth, separated from England by the U-boat fleet.

It is against this background that the importance of America emerges. We were distant enough to be unmolested by bombing, and had the industrial capacity to make an enormous amount of anything we chose. With these assets, it was logical to assume that if our theories were valid and if we made the right sort of things to support our theories we could carry the battle to the enemy. Thus the burden of "winning" the war was in a sense put on America's shoulders. Inasmuch as the airplane had already proved itself the dominant weapon in modern war, the importance of clear thinking and good planning by the U. S. Air Corps was only too clear.

At this juncture, the leaders of the Army Air Corps well realized the principal tasks of military aviation used tactically: (1) the gaining of air superiority, (2) isolating the battlefield, (3) coöperation with the ground forces in offensive operations. If, before 1939, the terrific power of tactical aviation had not been appreciated, the Germans corrected this. Their air force gave, in Poland, the Low Countries and France, a shockingly clear lesson on the effectiveness of the airplane as an air-ground weapon.

Up through the summer of 1943 the Germans had constructed several hundred large airfields throughout France, Belgium and Holland, many of them along the coast. Fighters from these fields attacked our bomber formations in swarms from the moment they crossed

In cities, too, tactical bombing paved the way for ground forces. Here the burghers of Bruehl start digging out.

the Channel. If they could be driven back from the coast, our bombers could fly farther in safety, their losses would be fewer, and as a result they would be able to drop many more bombs on their targets. During the summer and fall of 1943 this was done with increasing effectiveness. At first the Germans reduced the number of aircraft on their coastal fields, but eventually gave up entirely trying to operate them. The endless task of filling up cratered runways, repairing hangars and living quarters, and the mounting piles of twisted planes, wrecked either by frags or by strafing fighters, evidently convinced them that the game wasn't worth the candle. By the end of 1943 the air over the Channel coast was ours.

The stage finally was set for the greatest amphibious assault ever undertaken by man, the invasion of France. The problem was the familiar one of any such operation: to pour men and equipment ashore at one or more points so fast that they could overwhelm the enemy defenses there, then dig in firmly to avoid being thrown back into the sea by the first enemy counterattack. From then on, it would be necessary to siphon men and equipment into the beachhead faster than they could be brought up from the interior by the enemy. In this way only would we be able to build up sufficient local superiority to break out of our beachhead and engage our foes in a war of movement.

The Rail and Airfield Attacks

In the light of these requirements, the antirail and antiairfield stage of our campaign appeared logical. In a few months of concentrated blows at these targets we hoped to eliminate the Luftwaffe entirely from the battle area, and so to wreck the transportation system that troops could not be moved in fast enough to oppose our build-up. There were a couple of hundred airfields to be hit, each one a difficult target to knock out. Once hangars and repair facilities are destroyed all you can do is to put holes in runways and damage aircraft by strafing or with frags. With respect to the former, it is hard to stay ahead of the enemy, who can fill in holes almost as fast as you make them. The latter becomes more difficult as the number of enemy planes decreases and as they are more widely dispersed and more carefully hidden. The rail problem was even greater.

"Dicing" the Beaches

It was now neessary to obtain a more detailed knowledge of the beaches selected. Vertical photography had shown intricate barricades in the shallow water and on the sand, but could not show how strong these were, whether made of wood or concrete, whether anchored deep in the sand, whether they could be overrun by landing craft, or avoided by infantrymen storming the beach. There was extreme hazard in taking low-level pictures of a strip so formidably defended.

The first "dicing" mission was flown on 6 May in an F-5, a light, unarmed version of the P-38, with a camera so mounted in the nose that it took a picture every five seconds, ahead and to the side of the plane. Earlier, P-38 pilots had been told that they might have to take photographs from as low as 29,000 feet. But that morning, one pilot crossed the Channel at 15 feet. He reached the other side at Bercq-sur-Mer, turning around a large sand dune to lessen his chances of being hit during the turn. His pictures later showed this dune to be an enemy gun position.

Altogether 11 dicing missions were flown and su perb photographs obtained from Calais to Cap de la Hague. The inherent danger of this work is indicated by the fact that the pilot on the second mission was never heard from again. But the assault forces got what they wanted. Mines with trip wires were detected attached to the tops of posts, gun positions were revealed in the sides of cliffs, weak spots in the defenses located. Thousands of copies of these pictures were distributed throughout the invasion army.

For D Day itself an air plan of great complexity and scope was developed. The RAF Coastal Command would patrol the Channel for submarines. A constant fighter cover to protect the convoy from the air would be flown, directed from a control ship in the Channel. During the night two American airborne divisions would drop near the base of the Cherbourg peninsula and a British parachute division on the Orne river near Caen. Also during the night the RAF Bomber Command would saturate with its entire strength five selected rail yards in the immediate invasion area. At dawn, 1,200 Air Force heavies would begin to plaster the beach defenses themselves. This latter operation was a delicate one. It was realized that direct hits on defense installations with more than five percent of the bomb load were unlikely, and that confusion and panic among the defenders would be the real dividend from the operation. For this reason, it would be necessary for the invasion fleet to hit the beach immediately after the bombing while confusion was still at its height.

Finally, the great day came, and the electric phrase "This is it" was heard in hundreds of briefing rooms. The invasion armada steamed out of the British ports, the parachutists and glider troops droned off into the night, and the RAF went to work, dropping over 5,000 tons on five rail yards, at that time the greatest single lift in air warfare. By first light the American heavies had commenced their H2X job, and at H-Hour the first assault troops crashed through barbed wire and mine fields onto French soil. As expected, the defenders in most places were dazed by the bombing.

But bitter fighting ensued along the entire coast, particularly in one zone of American responsibility where a complete German division had by pure chance moved in the day before for beach maneuvers. But the landing stuck. In two days it was clear that no immediate counterattack by enemy troops already in the

area could be expected to push us back into the sea. German submarines failed utterly to penetrate the shipping lane protected so carefully by naval forces and by the RAF Coastal Command.

Careful study of the enemy reaction immediately preceding and during the invasion makes it plain that complete surprise had been achieved by our forces, due in large part to a magnificently executed campaign on the part of the RAF to liquidate all enemy radar installations along the coast. It also appears that our aerial blows around Calais and down in the Nantes area were not wasted. For weeks the Germans believed that the Normandy effort was a feint and the real thrust would come to the east where we had for a long time been planting bombs like nasturtium seeds.

During the early days of the beachhead all went well. The British held the line along the Orne river, while the Americans fanned west, and reduced the Cherbourg peninsula. But as our ground forces worked their way inland they ran into a type of terrain which put them further and further behind schedule. That section of Normandy, known as the Bocage country, is characterized by small fields edged with deep drainage ditches and stout, impenetrable hedges. The narrow winding roads are also hedge-lined. Each hedge became a fortress, each field a dangerous open space across which withering enemy fire spattered in such a way as to discourage frontal assaults. The Germans had succeeded, despite our rail attacks, in bringing up a ring of troops which contained our forces in the hedgerows for weeks. These were well dug in, their camouflage discipline excellent, offering few targets for fighter bombers. They moved only at night.

By the middle of July, the schedule had gone so alarmingly out of whack that the air forces were persuaded to dust off a bombing technique which had been tried and had failed previously in 1944 at Cassino. But the reason for failure was known and it was believed that it could be corrected. This technique is carpet bombing. It consists simply of dropping such a heavy concentration of bombs in a small area that the defenders are stunned and demoralized for a short time. Before they can recover, Allied troops are among them mopping them up. Two carpet efforts were made from the beachhead. The first, a British show, was laid down near Caen on July 18. A five-mile advance was made, but was not followed up quickly enough, and the British troops soon lost their impetus when the enemy was given time to re-form and dig in. Despite this, another attempt was made a week later, this time by the Americans between Periers and St. Lô. It called for the dropping of 3,400 tons of HE by over 1,500 aircraft of all types in a space 7,000 yards long and 250 yards wide. American ground forces were brought up in strength as close as possible to the bombline, and the bombers struck. Before the dazed Germans could recover their senses, the First Army had poured through the hole in the dam, and the rat race was on.

The Carpet Bombing Problem

An analysis of the operation reveals some interesting facts. Enemy casualties amounted to less than 10 per cent, in some instances to only 5 per cent. This is because troops were well concealed in one-man foxholes and were not likely to be killed unless direct hits were scored on them. The damage to vehicles and weapons above ground was more serious. Communications were put in a state of chaos. But the real pay-off was in the psychological effect on the enemy. The endless stream of Allied aircraft completely destroyed the morale of several companies. Immediately after the attack scores of troops withdrew without orders and in utter confusion. This was the signal for others in the vicinity to follow suit. Prisoners taken were dazed, unable to coordinate or to think clearly. (After the Caen carpet attack numbers of them could not be interviewed by intelligence officers for 24 hours because they were unable to hear). Many stated that the mere presence of vast numbers of aircraft unopposed overhead was sufficient to produce a mental state bordering on panic. One prisoner voiced the opinion that a loud-speaker threat to lay on a carpet attack in a certain sector at a given time would result in mass surrenders.

But this mental paralysis lasts not more than one or two hours. To take advantage of it, the attackers must be so placed on the ground that they can rush in before recovery can be effected. This means that they will be in considerable danger of being bombed by their own planes.

The Dash Across France

It is not unreasonable to state that the carpet bombing at St. Lô changed the complexion of the war in

Americans advance over a road littered with the remains of German columns that had been hit by fighter bombers.

France almost overnight. The paralysis of the hedgerows ended abruptly, to be followed by a war of extreme movement in which the American air-ground team was given its first chance to show its stuff. The First Army, under an umbrella of fighter bombers, widened the gap, charged a short distance south, then curled east in a giant wave, rolling up the German flank as it went. It was in danger of being cut off by a determined German counterattack at Avranches, but the air ended this threat, pulverizing concentrations of enemy troops and armor as fast as they were formed. A week after the break-through, Patton's Third Army followed the First through the gap and roared south as far as the north bank of the Loire river. After a swift mopping-up operation in Brittany, it too turned east and embarked on one of the most remarkable end runs in modern warfare. There were numerous lifted eyebrows in military circles at this rash maneuver, which apparently proposed to ignore the threat to Patton's flank of large enemy forces south of the Loire. But Patton had discussed the matter at length with the chief of the TAC, which was to cover his advance.

"I am going to forget completely about my flank," he said, "if you can guarantee to protect it for me from the air."

"I can do that," replied General Weyland, "if I have the weather."

Patton took off. In a little over two weeks he had reached Paris. The weather held. In a month he was within sixty miles of Germany.

Weyland's job was threefold. In addition to knocking down bridges on the Loire and chivvying the German forces below it, he had to cover Patton's advancing tank columns, and at the same time aid in the reduction of three ports in Brittany where German garrisons were stubbornly holding out. He soon found himself in the position of a man trying to stand on two chairs which were rapidly sliding apart beneath him on a slippery floor. The stretch became terrific. In no time at all, he was operating simultaneously in places 350 miles apart.

The Nazi rout continued as resounding triumphs were rung up by air and ground. The First and Ninth Armies plugged remorselessly ahead against the main enemy resistance, aided by their respective TACs. A German force of 36,000 men in the Loire area under the command of General Erich Elster could at any time and at any point for a hundred miles have driven a vicious barb into the Third Army flank. But Elster's movements were subjected to such constant aerial scrutiny, and any attempt to "snowball" his troops was met with such a blistering visitation of Jabos (German for dive bomber), that his threat remained theoretical. He was pinned down so tight that he found it impossible even to move out. When still another American army, the Seventh U. S. (along with its own air partner, the First Tactical Air Force, Provisional) landed near Marseilles and moved north to join the Third Army in Eastern France, Elster had had enough. With 20,000 troops remaining, he surrendered to one of Patton's infantry platoons, but insisted that Weyland, whose planes had caused him so much anguish, be in on the ceremony.

It is interesting at this point to see what the enemy himself thought of the relative effectiveness of Allied attacks. From captured documents and interviews with numerous prisoners of high rank, it is clear that the German General Staff regarded the Seine-Loire interdiction as the greatest thorn in its side, closely followed by the strategic oil campaign. The field commander and the common soldier, on the other hand, felt that they had lost the Battle of France because of the intensity and accuracy of Allied artillery fire and ubiquitous activities of the fighter bomber. As in a football game, it all seems to depend on where you sit.

Meanwhile the Breton ports fell. For weeks the sky over them was ten-tenths airplanes, as British and American heavies, mediums and dive bombers poured an unbelievable tonnage on Brest, St. Malo, and the Isle de Cezembre—three battered monuments to the uneconomical use of air power.

Patton Runs Out of Everything

Patton's drive carried him right across France and almost into Germany. Here he stalled. He had run out of everything—gasoline, food, ammunition, maps. Attempts were made to keep him going with air supply, but this was not available on a large enough scale. He dug in west of the Metz forts, while all supplies were diverted to the north, where the First, Ninth and British Armies still had some momentum, the hope being that this momentum would last long enough to permit a flanking of the Siegfried Line and a crossing of the Rhine river in Holland.

With the Ardennes again in Allied hands, the ground forces resumed their task of crunching forward to the Rhine. With the British and Canadians already firmly anchored there at Nijmegen, it was planned to consolidate all our other forces along the west bank, preparatory to the launching of a giant double crossing north and south of the Ruhr Valley aimed at swallowing it whole. With the Ruhr and Saar gone, and Silesia long gone, it was not expected that the Reich could hold out much longer. Before this could be accomplished the Third Army had to get through a very sticky area involving the crossing of the Prum, Saar and Moselle rivers and the capturing of Bitburg, Prum and Trier. This was done, aided by the close-coöperation work of TAC. Meanwhile, the First Army cooled its heels on the west bank of the Roer, still held up by those damned dams. Several feints were made, hoping to get the enemy to blow the dams and get the water out of the way for good and all. Instead he did something far more disagreeable. He opened the valves and let the water out just fast enough

to keep the river at flood level for over two weeks. Finally it went down and the First jumped off, rolling all the way to Cologne in 10 days. Soon the Ninth Army was also gazing across the Rhine's waters at the smoke-grimed factories of Dusseldorf.

The battles of the Roer and Saar rivers were the last that the Wehrmacht was to fight in the West with any degree of vigor. We had foreseen great difficulty in negotiating Germany's mightiest river, but such was not to be. The enemy had cashed almost his last chip. Five years of war, three of mordant bombing which had reduced his cities and factories to cinders, the decimation of his regiments, the crystal-ball military inspirations of his Fuehrer, the presence of fresh and unnumbered armies on both his fronts and vast armadas in the sky over his head, all these produced in him a schizophrenia and despair which made the last great operation almost anticlimactic. Without pausing to draw breath, the First Army pushed across the Rhine below Cologne, setting up a bridgehead via the shaky Remagen bridge. This had long been a target for the Ninth Bomb Division, and it stood up under the tread of American feet and the clank of American armor just long enough for a sizable force to get across. Then it sank beneath the waves, to join the Rhine maidens and the other Rhine bridges laid low either by the hands of their builders or by Allied planes. In the next few days the Second British and Ninth American crossed in strength at Wesel, aided by the largest one-day airborne drop on record 14,365 troops and 1,345 tons of equipment were delivered by aircraft and gliders alone. Patton burst across at Oppenheim, followed by Patch below Mennheim. Operating at breakneck speed against dwindling enemy resistance, these five armies thrust a series of air-protected and air-supplied columns down Germany's highways and around her cities, encircling the Ruhr.

The iron tentacles kept curling farther and farther, to Frankurt-on-Main, Mannheim, Muenster, Hanover, Gotha, Schweinfurt, to places which not so very long ago were at the extreme limit of heavy bomber range. By April 20, Magdeburg and Leipzig had been taken, and Patton had crashed across the Czechoslovak border with Dresden only a few miles ahead. Germany had lost the war so irrevocably that the German scene had degenerated into a maelstrom of destruction which was continued only because of the fanatacism of the Reich's gangster-leaders. Gone, through strategic bombing or capture, were 90% of Germany's steel capacity, 85% of her iron ore, 95% of her hard coal, 100% of her ferro-alloys, 100% of her coke, 80% of her lignite, 95% of her fuel, 95% of her synthetic rubber capacity, 70% of her tire manufacturing, 55% of her tank manufacturing, 75% of her truck manufacturing. And, as each day passed, these percentages were growing higher.

Germany by April 20, had been virtually cut in two. Tactical and strategic air forces smacked bridges across the Danube at Regensburg and other near-by places to keep anything from moving across the remaining slender waist toward Munich and the Bavarian Redoubt where, it was reported, Hitler and his henchmen would make a last stand.

The Luftwaffe Is Finished Off

And the Luftwaffe? Its condition was perhaps best expressed by a German POW from a flak outfit. He said his units had three simple rules: (1) If a plane is silvery looking, it's American; (2) If it's dark in color, it's British; (3) If it can't be seen at all, it's German.

By April 20, 55% of all airfields in Germany had been captured. German aircraft were being crowded into fewer and fewer fields as each day passed, which, together with the excruciating fuel shortage, explains why in the first 18 days of April our air forces were able to destroy 3,121 German planes of all kinds, only 400 to 500 of them in the air. This merciless clobbering, plus the fact that 35% to 40% of the aircraft industry had been captured and a great deal more lay in ruins from bombing, meant that the Luftwaffe finally had ceased to exist as a fighting force.

As for our air forces, all were now tactical. On April 16, it was announced that the U. S. Strategic Air Forces would now play a solely tactical rôle.

Germany was seeing the final result of what she began when her dive bombers screamed down on Warsaw, Rotterdam and Coventry. What Germany had been able to dish out was literally microscopic compared to what she got. Her bombers destroyed only 17% of London. Fifty-six large cities in Germany are 50% to 80% destroyed by Allied bombing. Thus, as it turned out in the final accounting, German air planners had made some crucial errors. They had overestimated the power of their air force and underestimated the potential power of the Allied air forces. They had failed to concentrate on gaining air superiority before proceeding with other air plans. They had failed to plan properly in the sense that we planned a truly strategic bomber offensive, aimed at Germany's war industry, while the Germans, in the Battle of Britain, bombed almost indiscriminately. They had failed to organize air-ground coöperation to the extent that has made the Allied tactical air forces so successful. And, finally, in their insufficiency in the realm of ideas, they failed to discern even faintly on the horizon the overwhelming might of the strategic air power that had shackled their aircraft production and left them without the fuel to fly.

The Tactical Mission Is Fulfilled

The American tactical air forces have superbly fulfilled the three missions of tactical air power. (1) Gain the necessary degree of air superiority. (2) Prevent the movement of hostile troops and supplies into the theater of operations or within the theater. (3) Participate in a combined effort of the air and ground forces, in the battle area, to gain objectives on the immediate front of the ground forces.

Turning th

Unspectacularly, almost soundlessly in the ea the history was in the process of accomplishme It wa Germans off balance by drawing their reserv to w

British Official Photo

A British infantryman, snow-camouflaged, dives for cover as a mortar bomb bursts near him. The action occurred as the British Second Army struck east of the Maas River.

THE spectacular advances by armor, which are sounded in the world's headlines, invariably are founded on a hard-fought infantry action. This is the main battle. Its progress, measured in yards rather than in miles, fails to lend itself to dramatic presentation. But once this main battle is won, and the enemy organization has disintegrated, the horizon of the battlefield is limited only by terrain and supply.

During the February-March efforts that took Allied armies to the left bank of the Rhine, the main battle was fought in the sparsely populated area at the northern extension of the Siegfried Line defenses, and not, as might have been expected, in the Aachen area—which was the gateway to the Cologne plain—where an advance would have brought the Ruhr industrial towns on the other side of the Rhine into the firing line.

For more than 6 months the deep defensive zones of the Siegfried, although penetrated in some sectors, had resisted all frontal attack. The line had served its purpose of preventing a sudden Allied eruption into Germany, and when the Germans undertook their major offensive in the Ardennes it was without fear, because the line provided a secure flank against an enemy penetration of an exposed front in the event the offensive failed.

Early in March, 1945, the Siegfried defenses at last were turned on the northern end by British and Canadian troops under command of Field Marshal Sir Bernard Montgomery, who also commanded the American Ninth Army which performed a related mission in the south.

Operations Combined To Single Plan

The operations of all forces engaged in the battle formed part of a single plan. Although composed of the British-Canadian phase of the north, and the American Ninth Army phase in the south, the single objective of the plan was to reach the west bank of the Rhine between Neuss and Emmerich, and to destroy the enemy armies in that sector.

Emmerich, on the east bank of the Rhine, was protected by flooded areas composing in themselves an extension to the northern Siegfried defenses. Neuss, on the west bank of the Rhine, faces Dusseldorf and the heart of the Ruhr; its approach lies across the Cologne plain.

The United States Ninth Army was to operate on the Cologne plain. Thus, although the operations between Emmerich and Neuss formed part of a single plan, the mission of the American Ninth Army in the south was an individual phase. An advance across the Cologne plain was not a promising operation until the enemy reserves had been committed; and it was the function of the British and Canadian forces, who were to attack in the north, to draw these reserves to their own sector. (Actually, two German Panzer divisions and one Panzer Grenadier division were moved north from the Ninth Army area before the Ninth entered the battle.)

For the battle, Field Marshal Montgomery created a task force comprising 10 divisions from the British Second Army, between three and 4 divisions from the Canadian First Army, and the United States Ninth Army. The British divisions included English, Scottish and Welsh infantry, the Guards Armored Division, and other armor. The attack was launched in the Canadian sector of the Allied front in northern Hol-

e Siegfried Line - - -

f the world, one of the greatest feats in military
It was achieved when Allied troops threw the
to what was to prove merely defensive action.

*by Major John North**

land, and the British and Canadian divisions committed to it were under Lt. General H. D. Crerar, commanding the Canadian First Army.

River Crossing Formidable

The starting line for the southern operation was the Roer River, tributary of the Maas, which it joins at Roermond. The crossing of the river was in itself a formidable enterprise. On February 23, when the attack went in, the river's width from flooding was 80 yards, and its current 3½ to 5 miles an hour. Nevertheless, it was crossed on a 15-mile front. Bridgeheads were formed quickly and linked up at a number of points. Bridging operations were successfully carried through under heavy artillery fire; and tanks and guns soon were pouring over the river in large enough numbers to support a breakout from the bridgehead.

The Germans now were considerably disorganized and unable to form a coördinated defense against the armored and motorized infantry columns which thrust to the northeast and north. By March 3, Munchen-Gladback and Neuss had been occupied. Three days later Krefeld, Homberg, and Rheinberg had been taken. The United States Ninth Army had reached the Ruhr front.

Meanwhile, the main battle had been fought out in the north, where enemy reserves had been drawn. Here there were no big towns to capture; no opportunity for an armored breakthrough; and but few square miles to occupy. The British and Canadian attack jumped off from the Dutch frontier on the morning of

*British Staff Officer.

After "Crocodile flame throwers" have done their work, British infantry enters the small village of St. Joost.

British Official Photo

British Official Photo

Despite bad weather which slowed air support, British infantry advanced steadily to "turn the Siegfried." Above, a Tommy makes use of a shell hole in side of a building.

February 8 and went in across a waterlogged desolation.

It was hoped that cold weather would make the ground hard enough for a maximum use of armored forces. Instead, a continuous thaw produced almost impossible ground conditions. Mud and widespread flooding by the enemy prevented the movement of all types of vehicles on the few roads that were available, and these soon were broken up by heavy traffic. Only by use of the latest type of amphibian vehicles was it possible for the British forces to maintain pressure on a highly resourceful and tenacious enemy.

Germans Use Best Troops

From the earliest days of this battle, the area had been defended by three parachute divisions, which were probably the best fighting troops still remaining in the German army, and 4 infantry divisions, reinforced as previously stated by three Panzer divisions. A crossing of the Rhine in the neighborhood of Emmerich offered direct access to the north German plain. Such was the sensitiveness of the Germans to the British and Canadian threat along this stretch of the Rhine that they fought for every inch along their slow and well-ordered withdrawal to the river line.

The battle lasted for just over a month. Using a variety of water craft, the Canadian infantry took the extreme left flank, then struck due eastward toward the Rhine for the Cleve-Emmerich road. The British divided and went east for Kranenburg and Cleve and southeast to Bruk and the western tip of the Reichwald, a great defended state forest which was the immediate objective of the British assault.

Cleve lies at the northeastern corner of this forest, and was captured by British infantry on the fourth day after the attack opened. But the Germans speedily recovered from the initial massive air and artillery bombardment, and because of bad weather had little to fear from future air attack.

To the Canadians fell the grim task of clearing the Hochwald forest, a layback of the Siegfried defenses, and comprising a strongly protected "hinge" area for the enemy's withdrawal to his Wesel bridgehead, some 20 miles south of Emmerich.

Cleve fell, and then Goch—deep in the heart of the Siegfried defenses—became the center of German communications in the area between the Maas and the Rhine. Its perimeter was fortified with antitank ditches, concrete pillboxes, mine fields, and barbed wire. After a three-day battle it was taken by British infantry, who fought through the Siegfried fortifications at 10 yards range.

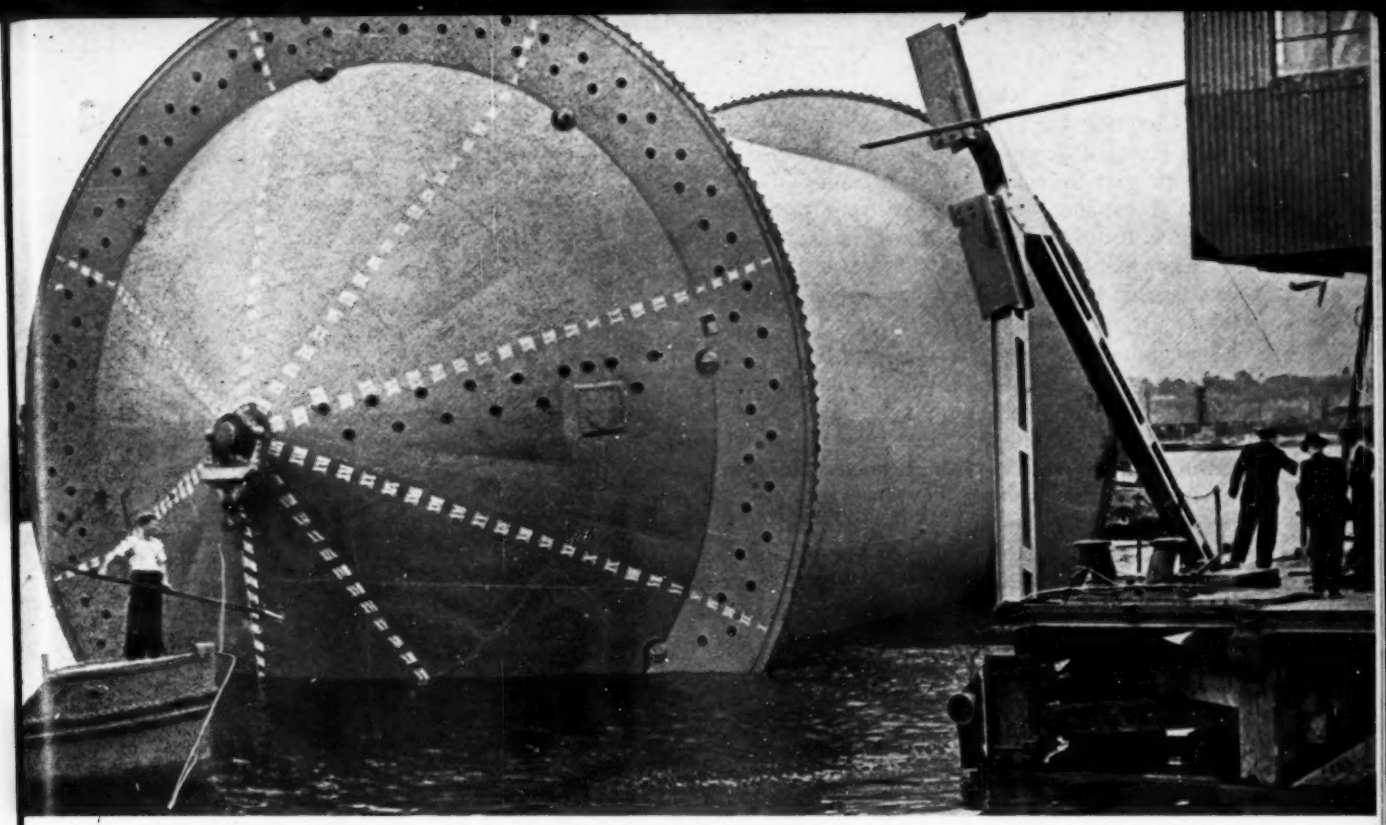
At last the Germans endeavored to stabilize a line through the Hochwald to Geldern. But by now the advance of the United States Ninth Army had begun to influence the northern battle, and the enemy was compelled to fall back upon his Wesel bridgehead. His resistance was so fierce, however, that the fight for the bridgehead was described as the toughest and bloodiest the Coldstream Guards had ever known. The bridgehead was not finally eliminated until the night of March 9-10, three days after the American entry into Cologne.

Conclusions

Thus the pattern of this British and Canadian month-long battle between the Maas and the Rhine was similar to the even more protracted battle for Caen. Each was part of a larger Allied operation. On each occasion the Germans chose to regard the British and Canadian sector as the "hinge" of the Allied front, and allowed their reserves to be drawn into what was merely defensive actions. In both operations American armor and infantry exploited brilliantly the openings provided in the weaker sectors of the German front.

The tactical plan of this second "hinge" battle in the west actually was imposed by the Germans themselves. It was not the Allied plan that the British and Canadian forces should bear the sole brunt of the fighting for over a fortnight.

But on February 9, the day after the opening of the British and Canadian assault, the Germans blew the Roer dams, and the average current of the river rose to between 6 and 8 miles an hour. This rate of flow continued for nearly a fortnight and entirely precluded the possibility of assault boating and bridging. Thus the American attack, originally designed for February 10, was postponed to February 23. As a result, the enforced interval between the two attacks served to put the German army off balance, and entirely "unhinged" the door to the Cologne plain.



One of the big drums which laid pipe under the English Channel, shown being moved into position for loading.

British Official photos

Operation Pluto—*

The Channel Pipeline

DURING the 8 months from August 1944 to May 1945, approximately 120,000,000 gallons of gasoline reached the Allied armies in Europe via the pipeline system laid under the English Channel by British engineers in coöperation with the British Navy. One million gallons daily still reach France by way of 20 undersea pipelines, and thence are carried to the Rhine via high pressure gasoline lines.

This vast engineering feat was called "Operation Pluto," meaning "Pipeline under the Ocean." Invulnerable from air, surface or submarine attack, and completely independent of the weather, it guaranteed uninterrupted delivery of bulk petroleum to the beaches —a feat which usually required a special harbor and dock, and extensive storage facilities.

*British Information Service.

The United States Army was working on a similar idea, but after discussions it was agreed that efforts should be concentrated on Pluto. Although General Eisenhower and his chief officers took an active interest in Pluto's development, the channel pipeline was a purely British operation in plan and execution, with the exception of 140 miles of cable manufactured in the United States.

The idea for an oil pipeline across the English Channel developed in 1942. The experts at first were doubtful. One of them, who had used three-inch high-pressure pipelines in Persia, suggested a pipeline something like a submarine electric power cable without cores and insulation, which could be laid across the Channel in a few hours from cable-laying ships.

By working day and night over two week ends, technicians completed the full-scale order for several hundreds of yards of this pipeline to be laid in the Thames from a cable-ship loaned by the British Post Office. The results were so successful that Prime Minister Churchill gave the scheme his blessing and two 30-mile lengths of cable were ordered made in the original two-inch diameter, so that full-scale trials could be conducted in Bristol Channel, where the currents and other conditions approximate most closely those found in the English Channel. Subsequently, the cable diameters were increased to three inches and strengthened for working pressure in excess of 1,200 pounds per square inch.

Eight months later, when half a gale was blowing in Bristol Channel, the experimental cable was laid by *H.M.S. Holdfast,* originally a coaster which had been fitted with gear for transporting this unusually heavy cable—and gasoline was delivered from Swansea to Ilfracombe. If the cable was hollow it was liable to kink and so stop the oil flow. It was, therefore, laid full of water, to keep it inflated. This pipeline was called the "Hais."

Meanwhile another pipeline was invented. Named the "Hamel," it was composed of 20-foot lengths of three-inch diameter steel pipe which could be welded automatically into any length, and could be wound on to a drum like thread on a spool, provided the drum was 30 or more feet in diameter. To use this, the *H.M.S. Persephone* was converted from a hopper barge to a craft with a great wheel rotating in trunnions on her deck, making it possible for the ship to carry many miles of the three-inch Hamel pipe, and to pay it into the sea. From this, a second idea was developed—a floating drum capable of carrying the full length of pipe for the Channel crossing, and which could be towed by tugs like a large bobbin paying off the pipe as it went.

Within a few months, a special factory in the Thames Estuary was equipped for welding 20-foot lengths of the Hamel pipe into 4,000-foot lengths at a rate of 10 miles daily, with facilities for storing the lengths to a total of 350 miles a day. Shortly afterwards a duplicate factory was established in case the first was bombed.

The floating drums, called "conuns" for short, were moored in deep water at the end of the pipe racks in order that the 4,000-foot lengths might be welded into a continuous length of 30 or more miles, and wound onto the conuns while they rotated. A conun is 90 feet long, over 50 feet in over-all diameter, and when fully

Told for the first time, and one of the greatest supply stories of the war, the 200 miles of pipe shown below in ¾-mile lengths, made possible delivery of 1,000,000 gallons of gasoline daily during the invasion of France.

Gigantic seagoing "bobbins" wound with pipe were pulled across the English Channel to lay a pipeline to France.

wound weighs 1,600 tons, the weight of a destroyer. It can carry 70 miles of pipeline. The drum around which the pipe is wound is 40 feet in diameter and 60 feet long.

Finally the coördination of the whole scheme was perfected, provision was made for pumping stations on the English shore, and Force Pluto was formed to lay the under-channel pipeline. It was composed of ships of all sizes, from 10,000 tonners to barges and motorboats.

Force Pluto's main base was Southampton, England, with a secondary base at Tilbury. It numbered 100 British Merchant Navy officers and 1,000 men. In addition to *H.M.S. Holdfast,* three merchantmen were fitted with the cable-laying machinery. Two could carry 100 miles, and another 30 miles of Hais cable. Thames barges were converted for handling the cable at the shore ends, where large ships could not operate. Six conuns handled the Hamel pipe. New pipelines were run from the British system to take the gasoline to the coast.

The special high pressure pumping stations were cleverly camouflaged. One of these was in a row of blitzed houses at Sandown, on the Isle of Wight, another was in an old fort built in the 1860's against possible invasion by Napoleon III; and others were in a modern amusement park and in seaside villas at Dungeness.

Operation Pluto began as soon as mines had been swept from the approaches to the tip of Cherbourg Peninsula. The lines running from the Isle of Wight to Cherbourg took 10 hours to lay, and soon were conveying gasoline to the United States armies. The lines which were established as soon as Boulogne was captured, from Dungeness to Boulogne, took 5 hours to lay and transported gasoline to the British 21st Army Group. Men of the Royal Army Service Corps pumped oil to cleverly concealed pumping stations on the French coast. Operating frequently in rough weather, they were forced to wade up to their necks to bring in the end of the line from the ships. An R.A.S.C. petroleum unit maintained direct contact with the French terminals by cross-channel wireless-telephone, and thereby instantly reported variations in the quantities delivered.

Trends in Mechanized Cavalry

*by Lieutenant Colonel Charles J. Hoy, Cavalry**

"Cavalry is a rôle and not a means of transportation. This fact cannot be ignored on the battlefield. Technically, mechanized cavalry possesses a combined road and cross-country mobility that is unmatched by any other arm."

Employment

IN the several theaters of operation, higher commanders have found it expedient to employ their mechanized cavalry on missions other than the one for which it was primarily organized and equipped.

Paragraph 38, FM 100-5 (FSR, Operations) states: *"Mechanized cavalry units are organized, equipped, and trained to perform reconnaissance missions, employing infiltration tactics, fire, and maneuver. They engage in combat only to the extent necessary to accomplish the assigned mission."*

In all theaters of operation mechanized cavalry units have successfully performed their primary mission. Their actions on strictly reconnaissance missions, however, constitute a comparatively small part of their history in World War II. During the advance through Normandy and the drive across the Rhine, they have been required to:

1. *Seize and hold critical terrain features for a limited time.*
2. *Assist in the pursuit and exploitation of disorganized enemy troops.*
3. *Fill gaps between large units.*
4. *Perform ground reconnaissance and counterreconnaissance.*
5. *Accomplish protective missions (security for other forces on the march, at the halt, and on the battlefield).*
6. *Protect lines of communication troops.*
7. *Execute delaying actions to cover the retrograde movement of other troops.*
8. *Perform combat liaison between large units.*

Each tactical decision which called for the employment of mechanized cavalry on missions other than reconnaissance was made because there was immediate battlefield requirement for light mechanized cavalry, and the mechanized cavalry squadron filled the requirement.

Cavalry is a rôle and not a means of transportation. This fact cannot be ignored on the battlefield. Battlefield circumstances dictate the need for an arm that can make long marches, and move its fire power and system of communication easily and rapidly from one position to another. Technically, mechanized cavalry possesses a combined road and cross-country mobility that is unmatched by any other arm.

It has been the heritage of the cavalryman to look far afield, to possess a flexible mind, and to act quickly, aggressively and with great boldness when the situation indicates.

To meet battlefield demands, high commanders often call upon mechanized cavalry to perform traditional cavalry missions. Although reconnaissance remains the primary mission of mechanized cavalry, battlefield reports indicate that field manuals pertaining to mechanized cavalry should be revised to reflect current decisions and accomplishments. In other words, the pendulum has swung back to the point where certain cavalry missions can be assigned to light mechanized cavalry. This light rôle which has recently so often been assigned to our mechanized cavalry groups, regiments and reconnaissance squadron in no way duplicates the missions of the armored divisions. The means of transportation and the techniques for accomplishing cavalry missions are different now, but the original basic doctrine still is applicable.

The Cavalry School anticipated this change and, just prior to D Day in Europe, a pamphlet entitled "Employment of Mechanized Cavalry" was submitted to Army Ground Forces and approved. Instruction was revised to include the following:

1. *Reconnaissance missions.*
2. *Protective missions,* which include advance flank and rear guards and covering force for a withdrawal.
3. *Other missions,* which include seizing and holding critical terrain features for a limited time and pursuing a beaten or disorganized enemy.

The current organization and equipment of mechanized cavalry are not entirely satisfactory for the missions assigned on the battlefield. The spirit and the training of the cavalry officer and trooper have contributed to the successful accomplishment of what appeared to be incredible tasks. In view of what has been accomplished, written doctrine needs modification. These changes, as well as those affecting organization and equipment, must be based upon the past and present employment of mechanized cavalry in the European and Mediterranean Theaters, and its probable use when redeployed in the Pacific Theater. Considera-

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tion also should be given to the employment of mechanized cavalry in the postwar army.

Organization and Equipment

The swift movement of this war has been punctuated by periods of stalemate. Although mechanized cavalry's odometers have recorded thousands of combat miles, more shoes than tires have been worn out. Cavalrymen actually have spent, and will continue to spend, more hours in dismounted than in mounted phases. Excellent examples of the stalemated dismounted phases are to be found in the months spent in:

1. The Mediterranean Theater: In front of Cassino, on the Anzio beachhead, and to the south of Bologna.
2. The European Theater: In Normandy, west of the Rhine, and in front of the Siegfried Line.

During such stalemates, personnel of mechanized cavalry units have been required to perform dismounted combat and reconnaissance patrols and other missions, such as filling gaps. The scout section of the mechanized platoon is the main source of personnel for dismounted patrols. Of the 18 men available, 6 are mortarmen and 6 are drivers. To accomplish his patrol missions, the platoon leader has had to use his mortarmen and drivers as riflemen. In other words, mortarmen and drivers have had to "double in brass." Only in "ideal situations" can this be done successfully, and combat seldom presents ideal situations.

Training

Because mechanized cavalry must be versatile, it is essential that its personnel be trained in the techniques for performing all missions which will be required of them. Apart from reconnaissance, these "other" missions have been assigned frequently enough to justify being referred to as normal.

Constant application of battle drill in training and combat will do much to simplify and accelerate the movement and action of mechanized cavalry units.

Conclusion

The record of mechanized cavalry in World War II is magnificent. It has been required to perform missions under the most difficult conditions. With organization and equipment which impose limitations, improvisation has been, and continues to be, a necessity.

When the present FM's 2-20 and 2-30 are revised, consolidated, and extended, the new FM 2-10 "Employment of Mechanized Cavalry," when published, will obviate much subsequent change.

Organization and equipment, however, will be subject to continuous improvement and change through research and service tests.

The trend toward new T/O & E for mechanized cavalry must be guided by the demands of the future. Cavalry's heritage—mobility of mind and body—must not be compromised.

Britian's Fastest Cruiser Tank

British Official Photo

BRITAIN'S fastest and most heavily armored cruiser tank, the "Comet," played a major part in the final battle for Germany.

The Comet followed the Cromwell, which proved itself in action in the advance through France and Belgium last year. Powered by a Rolls-Royce Meteor engine, the new tank was built in British factories and soon became a favorite with the troops.

It is as reliable as the Cromwell and carries heavier armor and a hard-hitting 77mm gun equipped with a new gun-laying device which makes it the most accurate British tank gun.

Before going into production the Comet was tested, as are all British tanks, over more than 1,000 miles of the roughest, most varied terrain that could be found. It passed the tests triumphantly.

From the Rhine to the Elbe and beyond the Comet played a major part in the disintegration of the Third Reich.

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THE CAVALRY JOURNAL

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Intelligence in the Cavalry Group and Squadron

Services of intelligence, whatever their reliability may be, are indispensable in time of war. The more that is known about an opponent, the better are the chances that strategic intentions against him will be effectively carried out and that the enemy will be surprised. Consequently, intelligence and information services should be as effective and efficient as possible.—From *Surprise* by General Waldemar Erfurth.

*by Captain Robert W. Williams**

THE primary job of the intelligence officer is to keep the commander informed at all times of the enemy's situation and capabilities. But on the basis of a *complete* enemy picture, the S-2 usually knows very little because his sources of information are extremely limited and the reliance which he can place on even these sources is generally questionable.

Almost without exception, unless enemy information has been double-checked it cannot be assumed to be correct. The statement of one prisoner of war cannot be accepted at its face value unless unquestionably verified by another prisoner, or by some other means. A captured document cannot be accepted unless verified by another source. (The Germans repeatedly left false documents behind as they withdrew, as *any* withdrawing force could be expected to do.) Even a patrol report must be double-checked for absolute verification. If the foregoing statements are true, there is not much information available to an S-2 in sufficient time to be of tactical value to a coming operation.

A commander should not feel that his intelligence officer is not on the job because he cannot always present him with a complete enemy picture, and the troops should not feel that the S-2 is not aiding them when he is unable to hand them a clear enemy picture.

I have had many experiences with the war between *opinion* and *fact,* and it is a dangerous conflict with which to become involved. Only by persistent personal examination can the S-2 fight down the urge to include personal opinion in the information he gives out. The tendency is natural, but, by always keeping in mind the question, "Is it fact or opinion?" the inclination can be controlled.

The S-2 must evaluate the time element of the information. In precombat training we do not completely appreciate the utter ruthlessness with which time destroys the tactical value of enemy information. In combat, this information very frequently is not received in sufficient quantity and in sufficient time to be of value to the commander and troops in either a present or impending operation. For example, in February, the S-2 section of the 6th Cavalry Group developed a rather complete picture of the enemy occupying a certain portion of the German Siegfried Line—but most of the information was based on PW statements made *up to 5 days previously*. By the time sufficient information had been collected to present a clear picture, this information was so old that no faith could be placed in it. When the 6th Cavalry attacked it was quickly discovered that a complete shift of enemy units actually had taken place a few days prior to the attack.

Intelligence sections sometimes get jittery when information is slow in coming in from their troops, consequently, there is a temptation to "hunch" the time before passing the information to the rear. Instances have occurred where successive headquarters have "hunched" in such a way that an army headquarters has received information believed to be hot from the skillet—whereas in reality it is quite old.

There are also instances where information has been passed back *without the time being stated.* Neglecting to find out the time from the distributing agency, the headquarters receiving the information has rewritten the message, using *the time signed* or *an estimated time,* as the time of the information. Either course is treacherous, for it inevitably makes the information false.

If the S-2 constantly keeps the following questions in mind, much subsequent grief can be avoided:

1. Has the information been double-checked?
2. Have opinions influenced facts?
3. Has the true time element been considered?

The Squadron S-2

The Cavalry Squadron S-2 has one of the busiest jobs in his headquarters. He has only one enlisted man (technical sergeant) as his assistant. These two must maintain the flow of intelligence to the rear and, at the same time, supply the troops of the squadron with information sent down from above. The Squadron S-2 cannot be more than a distributing agent. His time for the evaluation of information is limited. The squadron headquarters (Fwd. Ech) must of necessity retain its mobility. This denies the S-2 the availability of those elabo-

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rate charts and files of enemy information which he would like to carry. He must operate from no more than one small field desk. He is further burdened with a certain number of maps to be carried with him at all times. He must also perform his share of night-duty shifts. Harassed night and day by liaison officers and visitors, he must at times drop everything to handle a problem of counterintelligence or civil affairs. Hence, the squadron S-2 is not able to give sufficient meditative time to the analysis of information which passes through his hands. Briefer reports or summaries can take the place of the periodic report, with emphasis on the reporting of information *as it is obtained*. Intelligence is far too much alive in the cavalry group and squadron to neglect it for periodic summaries.

In an article published in this magazine recently an operations sergeant recommended that the squadron S-2 be subordinated to the squadron S-3, thus making one large operations section. This scheme makes a convenient working schedule at headquarters, but the flow of intelligence information through the squadron, group (Div.), corps, army, army group and theater headquarters is *thwarted in its initial stage!* The squadron S-2 represents the fountain of intelligence information. A group S-2 is paralyzed unless the squadron S-2 passes him information. The former is not in a position to observe the front for himself, neither can he make up intelligence reports from operations messages. Just as he is paralyzed, so is *every G-2 behind him.*

The Group S-2

The Cavalry Group S-2 has a different setup. His section, consisting of a captain, technical sergeant and PFC, must operate on a scale and plane of thought comparable to that of the G-2 section of a division.

A corps headquarters controls the commanders of all troops assigned to the corps. The commanders of *combat* troops generally fall under one of three classifications: infantry division, armored division and cavalry group. The corps headquarters expects the information received from the cavalry to be as sound and intelligent as that received from the divisions. Further, it expects to place responsibilities on the cavalry which are placed on the divisions. In spite of the fact that a cavalry group with two squadrons is only approximately one-ninth the size of an infantry division, these things still apply.

The units which fight side by side in the line are almost invariably the three mentioned above. This means that the cavalry group must exchange liaison with the headquarters of divisions. The chiefs of sections and the commanders must also exchange visits and views. The cavalry headquarters must be prepared to hold its own at all times.

Now the big problem is, how the S-2 section of the group headquarters can strike the happy medium of operating on a plane of thought equivalent to that of a division while retaining the mobility normally expected of a cavalry group headquarters rather than that of a division headquarters?

It must do this by thoroughly organizing the limited personnel of the section, maintaining only essential files and reference data, and employing a few, very necessary intelligence teams. These must be discussed in detail.

First, the organization of the personnel of the section. In the 6th Cavalry Group it was found that the S-2 himself had to keep his head above the mass of details which flowed through the section at all times. He was familiar with the principal material and enemy information received by the section, but ignored the petty details which serve to cloud the big picture of the enemy. Having this scheme in mind, the S-2 found himself capable of dealing with the commander, the many visitors and liaison officers who came to the headquarters, and supervising the general operation of the section (to include the tasks of an S-5).

The details of the section were taken over by the assistant S-2 (who, incidentally, should not be used as a liaison officer). The assistant S-2 prepared the daily Periodic Report, handled the administrative details of the section (in combat the flow of paper is very heavy), supervised the map supply for all elements of the group, operated the PW cage, served as public relations officer and was prepared at all times to take over the job of S-2 in the absence of the latter. He was assisted by the intelligence sergeant.

The clerk was busy reproducing the periodic report, intelligence annexes and bulletins, routine administrative reports and orders, and maintaining his vehicle.

At times during an important push it was found more efficient to place the S-2 in the same room with the S-3 and move the remainder of the S-2 section to another location where it could work more efficiently.

Second, maintaining only essential files and reference data. After only a few weeks of combat the S-2 Section learned that it must either separate the wheat from the chaff or become hopelessly engulfed in a mass of insignificant reference data. The most satisfactory solution to the bulk of this problem was to keep 4 files labeled: Enemy Vehicles, Enemy Weapons, Enemy Organization (order of battle) and Enemy Mines and Engineering. In these files were pasted and/or typed the latest information of the enemy and his equipment.

For example: a large intelligence bulletin published by army group headquarters reached the group headquarters. From this entire bulletin there is usually only a small amount of information which it is necessary to keep. It may be something concerning a Mk VI tank—"All Mk VI Tanks now have a front hull thickness of 190mm in lieu of the previous 180mm . . . 20 January 45." This would be cut out and pasted in the file "Enemy Vehicles" under the section on the Mk VI Tank. When all valuable information is thus filed the bulletin is destroyed. This system is very effective and is recommended for use everywhere.

In addition to the files above, only a very few, very necessary files were maintained: an Administrative file, our own Periodic Report and Other Publications file, and a Periodic Report file of our immediate higher headquarters. The remainder of the material, such as terrain studies, special maps, periodic reports from flank units, etc., were destroyed as soon as they were no longer of use.

In order to retain maximum mobility, most of the material in the section was kept mounted. When the CP moved to a new locality, only essential items were unloaded. The large field desk was found to be too large and cumbersome, and was never dismounted. The small field desk is sufficiently large to serve the needs of rapid loading and unloading.

Third, employing a few, very necessary intelligence teams. Without an interrogation team during an operation there can be no satisfactory flow of enemy information. The S-2 should have no illusions about his sources of enemy information. They are extremely limited and very slow. It has taken successive patrols three or more days to find the answer to one question, whereas a prisoner has blurted out the answer in one moment. All the aerial reconnaissance in the world could not answer one-tenth the questions the S-2 would like answered. Yet from a prisoner, he stands a good chance of having a great many of them solved. It is seldom that a document is captured in sufficient time to be of value—even then, its statements must be double-checked. An intelligent PW may furnish this same information in a moment of hastiness. In all this, the fact has not been overlooked that the statement of one PW must be confirmed by some other source.

PWs represent the chief source of vital, live information, but they will benefit the S-2 only to the extent that the interrogation team can grill them. It is quite important to have intelligent interrogators who know and appreciate the value of rapid, tactical information. With such a unit attached to the S-2 section of the cavalry group headquarters, the flow of information during an operation is usually assured. In the 6th Cavalry Group, one-half an IPW team (one officer and two enlisted men) was sufficient to handle the prisoners taken by elements of the group. However, a squadron on an independent mission should have the same unit.

A photo-interpretation team (PI) also was a valuable asset to the section, one-half a team (one officer, two enlisted men with one mobile shop vehicle) was an ideal size to handle the needs of the headquarters. Ordinary policies of the team were modified during operation to suit the workings of the S-2 section. Aerial photographs were very seldom obtained in sufficient quantity or in sufficient time to be of any value. Bad weather prevented sorties, and reproduction difficulties at army headquarters prevented a wide distribution of those prints which were obtained. The PI officer found himself making almost daily trips to the rear in an effort to keep his coverage abreast of the tactical situation. This practice soon had to be modified, however, and in place of the primary mission of interpreting photographs, the PI team busied itself with other tasks which proved of vital importance to the commander and also the troops.

One of these was an up-to-date study of the terrain over which the 6th Cavalry Group was destined to fight. Detailed, practical terrain studies were drawn up and distributed to each squadron headquarters (and occasionally even down to platoons) in sufficient time to be of tactical value. As sensitive as mechanized cavalry is to terrain, these studies soon became a priority in the group.

Another task assigned the PI team was the preparation of plans of major towns and road centers at which the group would arrive during an operation. These town plans were drawn up from maps and aerial photographs, reproduced on a gelatin roll, and distributed in great quantity to all elements of the group. The 6th Cavalry Group was the first unit in Europe to use a PI team for the production of town plans, but the practice was adopted over the entire front during subsequent operations.

Another, yet not always practical task given the team was the preparation of an occasional terrain model. This was first attempted in February when the group faced the problem of breaking through a portion of the Siegfried Line. The model was made up on a 1/12,500 scale with a vertical exaggeration of 2.5 : 1. Plaster of Paris was obtained for the experiment. Paint was used to color woods, streams, roads, and towns. The model was a great success and was finished in ample time to be viewed by commanders within the group before the operation.

The PI officer was invaluable to the group when he was used to brief patrols and attacking units on terrain and enemy defenses prior to an operation. He employed aerial photographs, diagrams of the ground (both vertical and horizontal), terrain models, and any other terrain aids suitable at the moment. The men departed on these missions with a clear understanding and appreciation of the ground ahead of them, and with confidence which only a knowledge of terrain can give.

In addition to the IPW and PI teams, it is also important to have a counterintelligence corps (CIC) team. In Europe it was not possible to obtain more than a periodic attachment of such a unit. Since civil affairs must also be handled by the S-2 section, the attachment of a military government (MG) team is highly desirable. The closest possible liaison should be maintained between the MG and CIC detachments and the IPW and CIC detachments.

An S-2 section containing all the above attached teams is an ideal working unit. It cannot be expected that such attachments will be available to the cavalry group (or squadron) at all times, therefore, the priority value of the teams is in the order in which they have been discussed in this article.

Signal Corps Photo

After its first appearance in combat, the goon gun was given a high priority by both the army—and the enemy. Its light weight of 300 pounds makes it particularly useful in jungle warfare. Crew shown is in action in Italy, 1944.

Meet the "GOON GUN!"

A captured Jap said, "We felt secure until your fast-shooting stovepipes were brought up." He was speaking of the "Goon Gun," which the American doughboy says gives "Twice the firepower in half the time." Although originally developed to lay down a gas concentration, this 4.2-inch mortar, now used with WP or HE, is a most versatile weapon, combining extreme mobility and devastating firepower.

THE "Goon Gun" is manufactured and fired by Chemical Warfare Service personnel, and is the only rifled mortar currently employed by our armed forces. It was given its nickname by the special troops who first used it.

Developed by the CWS in 1924 to lob gas shells, it has since earned military renown for its many uses in a non-gas war. General Marshall credits it (along with the CWS incendiary bomb and flame thrower) for having "contributed materially to the successes we have so far attained."

"Goon Gun" Has a "One-Two" Punch

The goon gun really delivers a "one-two" punch because it fires two types of shell. One type spreads searing white phosphorus over the target, while the other, a high explosive shell, has the wallop of a "Long Tom." The technique is simple. First get the enemy up and moving with WP particles, and then let him have the HE.

The gun is more portable, quicker firing, and handles larger loads than other comparable weapons. Though having the same bore as a 105mm artillery howitzer, it weighs only 300 pounds including the 150-pound baseplate, and can be moved speedily to places inaccessible to heavier guns. Chemical Warfare Mortar Battalions, which use the 4.2 exclusively, are motorized and carry the mortars in jeep trailers. In rough terrain, however, the mortar men use hand carts, mules, or carry the equipment themselves.

The mortar consists of a barrel, a standard, and a baseplate. When assembled, it resembles a stovepipe propped up by a jack. The 25-pound shell which is muzzle-loaded, slides down the barrel by gravity and strikes a firing pin, which ignites a shotgun cartridge affixed to its base. This sets off the propelling charge of powder rings strung around the cartridge in doughnut fashion. The exploding gases force a pressure disc on the shell to expand and engage grooves on the way out of the barrel. This rifling gives the shell rotation and greater accuracy. Each shell holds about 8 pounds of WP or HE. It has a range up to 2½ miles.

Proves Value in First Combat

The goon gun became a high-priority item almost by accident. Its original purpose was to throw as many as 30 shells a minute and build up lethal gas concentrations before an enemy had time to don gas masks. Tests showed, however, that the mortar could fire TNT and WP with equal facility. The enemy could be drenched with burning phosphorus particles or hit with high explosive as readily as with gas. As an experiment, two chemical mortar battalions were sent into the Sicilian campaign. Making its debut with the initial assault waves, the goon gun furnished the infantry with such heavy close-in fire support that the army was convinced of its value.

Many battalions saw action in Italy and in France, and still others in the Pacific. A Chinese 4.2 mortar regiment, trained by CWS officers, was in action in Burma.

MEET THE "GOON GUN!"

by Major George O. Gillingham, C.W.S.*

Members of the 2d Chemical Mortar Battalion, who were in protracted service in Sicily and Italy, first began referring to their "goon gun" in July, 1943, and this nickname has remained, even appearing in official reports. In August, 1943, these mortars functioned so effectively at Hill 715, Mt. Fratello, Sicily, that the operation has since been referred to as the battle of "Goon Gun Hill."

Effective Against Variety of Targets

Since that time in Sicily the 4.2 has ripped apart concrete pillboxes, dugouts, fortified houses, tanks, half-tracks, and infantry and artillery positions. It has supported infantry, rangers, paratroops, mechanized cavalry, and other troops. On one occasion when no artillery was available, one mortar company wiped out a battery of German 88's with 12 rounds. Another unit dropped a round of high explosive in the open turret of a German tank.

A mortar battalion on the Solomon Islands drove the Japs from holed-in positions with such dispatch that a captured prisoner said he had felt secure until the "fast-shooting stovepipes" came along. The goon gun also routed the enemy from jungle strongholds on Arundel Island, blasted a Jap airfield on an adjacent island, and saw heavy duty at Bougainville.

Smoke Screens

Smoke screens are a major part of the goon gun's work. Artificial fog created by these chemical mortars have helped hide river crossings all the way from the Volturno to the Rhine. (A captain of an infantry company who got out of a tight position with the aid of smoke remarked: "That smoke screen was the most beautiful thing I ever saw in my life!")

One chemical battalion, firing a round every 15 seconds, built up a smoke blanket three miles long and nearly 1,000 feet high, and maintained it for 18 hours. Another time a mortar screen was sustained over a two-mile front for 14 consecutive days. In another operation two mortar platoons provided a 43-minute "leap-frog" screen to cover advancing infantry. In Italy an entire division front was screened with mortar smoke. Some screens were used as decoys to draw enemy fire; others shielded beach landings, bridge building and troop movements.

Precision and Fire Power

Precision of the 4.2 makes it ideal for close support. When the 100th Chemical Mortar Battalion was covering an advance in mountainous terrain, the attackers were able to move within 75 yards of the target area before the barrage was lifted. Mortars can work close to combat troops (rarely as far back as a 1,000 yards) and often place observation posts forward of the advance.

It is not unusual for a chemical mortar battalion to fire 9 tons of shells in one minute, move to another position within 6 minutes and—a minute later—repeat the dose. This rain of fire or explosives is so impressive that the thankful foot soldiers have coined a phrase for it: "Twice the firepower in half the time!"

In Battle Actions

Two nights after a ranger task force had suffered heavily at Cisterna, Italy, "Axis Sal" broadcast over the Axis radio: "Now that the rangers are finished, the 83d Chemical Battalion is the next!" But the 83d, with 500 days in the line, still was going strong when Germany surrendered. During its first year in action, this battalion fired 85,000 rounds, received 4 division and army commendations, the Distinguished Unit Citation, and more than 700 individual battle decorations.

Another unit, the 84th Chemical Mortar Battalion, landed at Salerno and fought for 118 consecutive days. When the Fifth Army crossed the Volturno, the 84th fired WP for 36 hours to obscure enemy observation of the crossing. At Anzio the battalion was in continuous combat for 138 days. They just dug deeper into their foxholes with the remark: "Relief, hell! We're part of the terrain!"

Five Chemical mortar battalions took part in the invasion of Normandy. The 81st and 87th landed on

First four rounds from goon guns start fire to left of church at Le Tholy, France, from which dense clouds of smoke are pouring. Other bursts are seen center right. The weapon has a range of 2½ miles. It uses a WP shell to get the enemy moving, then changes to HE.

Signal Corps Photo

*Office, Chief of Chemical Warfare Service.

D Day; the 86th and 92d followed immediately; the 91st reached France a few weeks later. For heroism in landing their 4.2's and fighting without let-up for 12 days, the 81st received a Distinguished Unit Citation. The 86th served with the First, Third and Ninth Armies, during which time it supported 21 different infantry divisions. In a year it had fired more than 124,000 rounds.

The 87th Chemical Mortar Battalion had the first guns in action on Utah beach during the Normandy landing, and also won a Distinguished Unit Citation. Troops of this unit were among the first to cross the German border and move into Aachen. This battalion was in such demand that at one time it was operating simultaneously on three different division fronts. In one operation in Germany the 87th fired 5,582 rounds in 24 hours with 24 mortars. At the time of Germany's surrender it had expended some 150,000 rounds.

The 91st Chemical Mortar Battalion got off to a late start, but it helped screen many river crossings. During the battle of the Belgian bulge one platoon fired so fast that the mortar barrels turned red from the heat. A gun of this battalion once was ordered directed at a house containing German troops. The shell landed on the target but failed to detonate. The next shell hit the dud and both exploded.

During two nights on the line in Normandy, the 92d Chemical Battalion fired 140 tons of ammunition. On the Vire River it expended 3,000 shells in a single day. Another time, resuming the fire where 16 field artillery battalions had left off, it hurled 115 tons of explosive into enemy positions in three hours.

After other means had failed, the 82d Chemical Mortar Battalion was called upon to dislodge the Japs from the Manila Post Office. Forty-five minutes of alternated WP and HE reduced the building to a burned-out shell. The 85th supported the 24th Division in steep, heavily forested mountainous terrain. As one mortarman put it, "We had to cross one stream 13 times to get to our position—except when it rained, when we had to wait 48 hours!"

Now an Amphibious Weapon

It now can be revealed that the goon gun is being used by the Navy to pave the way for Pacific landings. Mounted on LCIs, it has been most helpful in securing beachheads.

In such landings there has been a critical period during the assault and the establishment of the beachhead before artillery could be landed. The Japs' favorite weapon is their mortar, and their tactics have been to emplace it behind protective slopes from which they pour devastating fire on the landing waves. Gunfire from destroyers, cruisers and battleships provides the heavy artillery to cover landings, but it cannot always reach the Jap mortars. To meet this need the CWS interested the Navy in using seagoing .2s.

During July and August of 1944, three groups of LCI mortar ships were made ready. They were operated by naval crews, but the mortars were manned by infantrymen commanded by CWS officers. One group participated in the attack on Palau while the other group headed for the southwest Pacific and the Philippines.

At Leyte, one group accompanied by LCI rocket ships, led in the first wave and laid down such concentrated fire that not a live Jap was found within 500 yards of the shore. The next target was a bridge over the Deguitan River. Approaching Jap tanks were prevented from crossing, and our troops took possession of the bridge 20 minutes later. For several hours the south flank of the river was neutralized, giving succeeding waves an opportunity to move in.

Catmon Hill and its strong point, Liberanan Head, protected by a nest of enemy mortars, 75 and 105mm howitzers, were the responsibility of another group. The larger guns were silenced by our heavy naval guns, but it took the ship-mounted "goons" to finish the Jap mortars. Only once did enemy fire imperil the landing ships. A quick shift of position of one LCI mortar ship, a quick volley, and only dead Japs remained.

A new technique had been developed and the Navy equipped more such ships. Men of the 98th Chemical Mortar Battalion were borrowed from the 6th Infantry Division to operate at Lingayen. Their mortars formed a line offshore and softened up the beach to protect the waves forming behind. Then, with ever-changing range, they led the waves in, a rocket ship abreast of a mortar ship, continually pounding the beach. As the troops landed and moved forward, the mortar fire was lifted inland in front of them.

During the invasion of France, a battalion of 4.2-inch mortars go into action on a beach. Since the invasion of Sicily, the 4.2 has destroyed obstacles from tanks to dugouts, and has given fire support to all kinds of troops.

Signal Corps Photo

TANK FLAME THROWER

*by 1st Lieutenant Charles Hainfeld, CWS**

Armored School Photo

A trainee fires thickened fuel from a tank flame thrower at a cave. Thickened fuel has a "rod" effect, is used on narrow openings. Liquid fuel, which is thinner and spreads the flame widely, is used in underbrush where visibility is limited.

THE mechanized flame thrower has been of inestimable value in reducing American losses on the cave-pocked Pacific islands, and will be used more and more to burn out caves and pillboxes in the war with Japan.

An appearance of shooting around corners is produced by the billowing and swirling movements of burning oils. The flames penetrate gun ports of pillboxes, kill the occupants and explode sensitive ammunition. It also forces the enemy to close ports, temporarily putting the emplacement out of action, and thus provides protection for our demolition parties.

The flame thrower is mounted in M4 medium tanks, either as the main armament, or in the ball mount where the flame thrower and .30 caliber machine gun may be used alternately. A trained gunner can change from one weapon to the other in approximately 60 seconds, plus time to load or unload the machine gun.

Training in installing and maintaining the mechanized flame thrower unit, pressuring and fueling, mixing of liquid and thickened fuel, and firing the unit at typical targets from stationary and moving tanks now is being taught in classes at the Armored School at Fort Knox, Kentucky. Nearly 1,000 students have already received this instruction.

Liquid fuel can best be used against targets in thick underbrush where visibility is limited. Thickened fuel is propelled through the air with a "rod" effect, and can be employed with accuracy against small openings and pillboxes.

Practice firing will create operator accuracy and pay dividends in combat by conserving the limited fuel supply, and should be included in all lessons, plans and demonstrations for the training of flame thrower operators. Training also should include practice in changing from the flame gun to the bow machine gun because an operator may require the speedy use of this weapon to shoot the enemy as he emerges from the cave.

In the Pacific Theater the tank flame thrower has proven itself a valuable close combat weapon and in the hands of trained operators can knock out targets that are immune to other forms of attack.

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*Instructor, The Armored School, Fort Knox, Ky.

Epitome of Leadership

THROUGHOUT its history the Army of the United States has always nurtured patriotism and devotion to country, while teaching that honor, integrity, and the faithful performance of duty are to be valued above all personal advantage or advancement.

The American army differs from all other armies. Racially we are not a homogeneous people, and many of the characteristics which make the American soldier potentially the best in the world may be, with faulty leadership, a possible source of military weakness.

Americans are intelligent and resourceful to an unusual degree. These characteristics, while distinctly American, and the natural result of our democratic institutions, require vigorous and understanding leadership in all echelons of command.

The basic qualifications for military leadership are character, and a knowledge of men.

Bearing—The officer must carry himself erect, see that his uniform is clean and in good condition, and that it is worn correctly. Never for an instant can he divest himself of the responsibility of setting a high standard, and until he is satisfied that his own turnout and conduct are exemplary, he should not expect a corresponding standard from his subordinates.

Courtesy—The officer should set his subordinates an example of courtesy. A courteous manner in dealing with his men will increase their self-respect as well as their respect for him.

Personal Attitude—The officer should maintain a sense of humor and a balanced sense of proportion. In addition, he should cultivate a calm controlled manner and the habit of accentuating the brighter side of things.

The morale of the men is heightened when they see that their leader neither looks nor acts worried, even though they know that he has every reason to be.

In the interests of good discipline, officers are required to wear a distinctive uniform, to live apart from the men, and to confine their social contacts to other officers. *The officer must not make the mistake of thinking himself as a superior individual;* rather he should regard himself as one who has been accorded certain aids in order that he might best carry out the responsibilities of his office.

He must not take advantage of his position to obtain special privileges, especially those privileges which have no relation to military necessity nor effectiveness.

Moral Worth—The officer must demonstrate that the authority of his grade is deserved through moral worth. The habitual use of foul language by an officer is inexcusable; to swear at a soldier is despicable.

Knowledge—The officer is both leader and educator to his men. Experienced leaders prepare themselves in advance for every task. Their purposeful preparation with its resulting power of quick and sound decision, should be a matter of constant practice in the daily routine. The leader should not bluff—the men will sense it immediately. It is much better to admit ignorance of the subject in question, and then take steps to acquire the information. Officers are not expected to know everything, but they are expected to be honest.

Knowledge of Men—The environment and education of the average American soldier have laid emphasis on his value as an individual; in order to get the most out of him, he must be treated as such. The wise leader will study the personalities of the men he is going to lead and be influenced by this knowledge. Mutual confidence between the leader and his men is of first importance.

Man is the fundamental instrument in war; other instruments may change, but he remains relatively constant. Unless his behavior and elemental attributes are understood and appreciated, gross mistakes will be made in troop leading. A leader influences his men by his manner and by his actions. Since these attributes are largely controlled by his knowledge of the methods of handling men, an officer without adequate leadership experience has much still to learn. In his relations with his subordinates, the officer should use a practical, intelligent approach, one that will not only mark him as a true leader but will also, by example, do much to develop the leadership qualities of his subordinates.

Loyalty—Absolute loyalty is a fundamental prerequisite to good leadership—loyalty that extends downward as well as upward. If by actions or words the officer is disloyal to his superiors, the men will doubt his loyalty to them, and their loyalty will be affected correspondingly.

Health—The size of the sick call turnout is a good indication of the unit's efficiency. The commander must train his men in personal hygiene and be constantly on the alert for conditions that are conducive to poor health. Frequent inspection should be made of quarters, latrines, and bath arrangements. When the men are cold and wet, the leader must not rest until they have been provided with warmth and shelter.

Approach—It is always a grave mistake for an officer to try to gain popularity by undue familiarity, coddling, or currying favor. However, there are many services which he can and should render. He must walk the thin line between friendship and familiarity, and at the same time be parent, brother, and father-confessor to the men. This is not a one-sided relationship, because experience has shown that if the officer will take care of the men, they will take care of him.

Complaints—It is important that a commander keep himself accessible at all times to the men of his unit. Thoughtful consideration must be given to complaints. The man who makes a complaint thinks he has suffered an injustice. If he has, the fault should be remedied; if not, his faulty impression should be corrected at once. In this way, no grievances, real or imaginary, will be allowed to develop.

Orientation—The leader should make every effort to indoctrinate his men in the Army way and keep them informed. Nothing irritates American soldiers so much as to be left in the dark regarding the reason for things.

Morale—The American soldier responds to leadership which appeals to his pride in himself and his organization. The officer must, therefore, make every effort to build up the pride and self-respect of the men by laying emphasis on the proud traditions of the soldier in general and of their organization in particular. Good morale, on the other hand, is indicated by a positive drive on the part of the men; a push beyond that which is expected; an eagerness and enthusiasm concerning the leader's desires. The men must never be allowed to forget that they carry the badge of their unit and their country, and that those who see them regard them not as individuals, but as representatives of the unit whose insignia they wear. If they appear smart, alert, and efficient, the comment will be not so much "that is a good soldier" as, "that is a good outfit."

Fear—The successful leader will teach his men to recognize and face fear, because fear is the enemy of morale; fear unchecked will lead to panic, and a unit that panics is no longer a unit, but a mob. There is no sane man who is altogether without fear, but with high morale, men will face danger, if not willingly, at least stoically, because of their ingrained sentiments of duty, of courage, and of loyalty, and because of their sense of pride in their country, in their unit, and in themselves; in other words, because of their *esprit de corps*.

Rewards—Every act of leadership should make the follower feel that as long as he is doing his best to follow, he will be secure and his efforts will receive recognition. A leader should not be stingy with praise when it is merited. Recognition of a task well done, when judiciously and impartially administered, will go a long way to sustain a subordinate's self-respect and morale.

Privileges—Army Regulations, subject to restrictions of military necessity, contemplate that all military personnel will be granted reasonable opportunity for rest and relaxation. This privilege is very dear to most individuals and requires that the commander so regulate the interior administration of the unit that all share alike in the work and enjoy the same amount of leisure and other privileges. Few things can lower the morale of a unit more quickly than the belief that the leader is partial to certain men in such matters.

Promotions—Promotions are a potent means for recognizing demonstrated efficiency. It is a function of command to provide each group with a competent leader in whom its members have confidence. Since the manner in which promotions are made gives the unit an opportunity to pass on the judgment of the commander, it is important that promotions be made purely on demonstrated ability and without regard to favor or affection. The wise commander will give careful consideration to recommendations from subordinates, but he will remember also that the determining factor in the selection of men to be promoted is his own estimate of the man's worth. Because leadership is a question of life or death to the man in ranks, and because placing the right men in positions of responsibility is the most important safeguard for success in battle, this responsibility cannot be delegated.

Discipline and Punishment—Military discipline should not be a cowed state of subservience based on a system of punishments. It should be based on mental, moral, and physical training designed to insure that all respond to the will of the commander, even though he is not present. Punishment should serve only as a powerful means of reminding the petty offender that he is acting against the interests of the group.

Drill is the foundation of discipline and training; it compels the habit of obedience and stimulates the feeling of corporate strength as the unit moves together as one man.

Nevertheless, the first essential of discipline training is example, and no man who is himself undisciplined can claim the moral right to discipline others.

If he must punish, the leader should punish promptly, and justly, after fair warning. The punishment should be fitting to the offense and to the individual, considering his age, length of service, and personal characteristics.

In administering punishments, the leader must remain calm, impersonal, and dignified. He must never humiliate a soldier in the presence of his equals when it can be avoided. The leader will avoid the use of sarcasm; a soldier will resent it since it is a weapon which takes unfair advantage of him. In administering a rebuke, the leader will appeal to the soldier's pride in himself and point the way to atonement, being sure to indicate that the misconduct reflects unfavorably on the organization.

Noncommissioned Officers—The noncommissioned officers are the backbone of the American Army. It is important that they develop genuine respect for their positions and pride in their status. The commander will encourage initiative, self-respect, and develop leadership among NCO's by frequent conferences with them and give them definite responsibilities for the training and combat action of the men under them. He will insist that they exercise their authority properly and then

support them fully. The ultimate goal is a group of NCO's who will always be glad to obey when obedience is called for, and who are capable of taking the initiative when the occasion demands such action.

The commander should check up on his NCO's from time to time; he should not rely entirely on them for his knowledge of conditions within the unit. It is important that he provide an understudy for every key position in the organization.

Summation

The American Army of today is a fighting army; under the inspiration of good leadership and a just cause, it is an effective fighting force. The immediate responsibility for this leadership, necessarily, rests on the shoulders of young officers of company grade. The officer should approach his duties with the firm intention of taking every opportunity for acquiring the broad knowledge necessary to successful leadership. In his personal life, he should live up to the standards of an old and honorable profession. He must be loyal to his superiors; firm, impartial, and humane in his dealings with subordinates; diligent in duty—a leader in the true American tradition, by always setting the example.

Twin Essentials of Success in War

ONLY the military genius can afford to take chances with the recognized rules of war.

A "Stonewall" Jackson may be *able to* throw a handful of troops between vastly superior forces and so win a smashing victory, as he did at Second Manassas. But Jackson was a *great* soldier. Germany's von Kluck was only a *good* soldier. He was unable to duplicate Jackson's tactics, which might have saved him, at the Marne.

. . . "Stonewall' demanded miracles of his troops—and obtained them. He asked them to reel off 25 miles in a single day, en route to Bull Run. They gave him 26.

The performance demonstrates that Jackson was a great *leader* as well as a great *general*. The terms are not synonymous.

Leadership and generalship, in fact, are entirely different qualities. One frequently exists without the other. Great leaders inspire blind devotion in their followers but that is no indication that the leaders themselves are masters of strategy and tactics. . . .

The combination of leadership and generalship becomes almost irresistible. It is a prerequisite for the bold commander who dares the attempt to transform the science into the art of war Only if his men worship him, trust him, are willing to follow him to the point of death; only if he is sure of the mastery of his own touch; only if he is both leader and general can the commander of either a squad or a field army run the risk of ignoring the ordinary precautions of his profession. But if he possesses the combination, then a great soldier may appear.

Two qualities distinguish the soldier from the civilian.

They are, virtually, secrets of the military fraternity, although they have been repeatedly discussed and analyzed in public. They remain secrets, however, because rare indeed is the civilian who ever acquires the slightest understanding of what the soldier *means* when he talks about them.

They are the twin essentials of success in war. Without them no leader can expect to win more than a transitory victory. They must permeate his entire organization, regardless of its size.

They are *organization* and *discipline*, or rather military organization and military discipline.

Organization is not limited to a group of uniformed men, ranged around a flag. Discipline is far, far more than punishment for failure to obey an order. Neither the uniform nor the punishment, in fact, contribute anything vital to the understanding of either term.

Neither is easy to define succinctly because each means so many things to the soldier. Each covers so much related ground. For our purpose, however, we may consider them from the following standpoints:

(1) Military Organization is the weaving together of men and weapons in a suitable pattern for their efficient use in war.

(2) Military Discipline is the practice of following the rules of the game which govern that organization.

Since leadership becomes spotlighted as one of the great primary qualifications for the art of war and a determining factor in its scope, the general theory of the art begins to be clear.

There are certain general principles which apply to warcraft. They prove decisive when all other factors are approximately equal. They are included in the science of war, they ordinarily govern any situation and their careful application constitutes generalship.

There exists a rather mysterious quality known as leadership, which enables its possessor to secure unusual results from the soldiers under his command. . . .

In order to practice the science, a knowledge of which is essential to the art, the commander must work with soldiers. There are certain qualifications which make soldiers, setting them apart from civilians. Among them are organization and discipline, both of which remain to be discussed, together with the military rights and privileges which accrue from them.

—From *Twentieth Century Warfare*, by Lowell M. Limpus.

Universal Military Training

by Captain Myron W. Curzon, AUS

THE War and Navy Departments share jointly in the function of advising the nation on the military phases of national security. In considering plans for the postwar military establishment, the War Department takes into full account the implications of our tragic lack of preparation in World Wars I and II. This lack of preparation delayed our effective participation, caused excessive casualties in combat, and prolonged hostilities. It is believed that the adoption of a program for universal military training, integrated with plans for technological and industrial mobilization, will deter other nations from ever attacking the United States; but, if war should come again, we, having adopted such plans, will be able to meet its demands without again incurring these costly and unnecessary wastes and losses.

The Need for Universal Military Training

The United Nations Conference for International Organization at San Francisco has produced the framework of a plan for international agreement through which it is hoped that the security of not only the United States, but of all nations, will be assured. However, until this agreement has been established upon an operating basis, and we are satisfied that there can be no more world disorder, we ourselves must provide for our own national security. Furthermore, it is clear that the international agreement following the war will need the strong might of the world's great powers to enforce it. Employment of a trained citizen soldiery by the United States will be a profound influence for peace.

Both in this war and in World War I, American forces have proved to be the elements which tipped the scales for Allied victory. We face the sober realization that weapons available now and in the future will make geography no barrier to an attack on the United States *first*. Any aggressor of the future will seek to paralyze us through a quick smash at our industrial heart.

The experiences of this war have demonstrated that the organization for national defense which we maintained in the two decades prior to 1939 was not sufficient to our needs. We must have an adequate military posture of a character that we can support financially. This is a very practicable proposition. We have a huge war debt to consider, and in view of the ever increasing expenses incident to the peacetime burden of the federal government, we must have some establishment that does not draw upon too large a percentage of the national income.

This places the large standing army idea in its proper light. It could not be attained by voluntary recruitment; it would be too costly. It is not even, therefore, an alternative. It is out of the question.

The only plan is to establish a small standing army supplemented by a reserve of trained citizens, which could be mobilized within a relatively short period of time. A just distribution of the responsibility for participating in the reserve depends upon its being a general obligation. When the country accepts the need for training a large number of men, it will adopt the democratic and universal means of enlisting them for training.

Universal military training is not only the democratic way of assuring the number of ready trained men necessary to our adequate military strength, but it is also the most economical way in terms of immediate cost. Men would remain in the reserve for a specified number of years after completing their training. They would be subject to call when Congress determined a national need. They would receive their training at the least cost to the country, because they would receive it at the age most amenable to training, when their own economic contribution as civilians would not be great, and when most of them would not have incurred family obligations.

Need for Consideration of the Subject Now

The security of the nation is a continuous matter. Universal military training, involving as it does a fundamental change in the principles underlying mobilization of the nation's forces in time of wars, is deserving of the most careful advance planning.

A system of universal military training should become operative upon the termination of selective service in the present emergency. If this is not done, there will be large numbers of men of military age, subject to call in time of emergency, who will not have had the opportunity for receiving this training, and hence will not be ready for immediate military employment. Nothing fair nor less democratic can be imagined than to rest the future security of America on the same heroic men and women who are sacrificing so much to win victory in this war. Millions of these citizens have already been under arms and absent from their normal civilian pursuits, many of them overseas, for three or 4 years. Surely, our country will not take the ungrateful position that, because some of these veterans may be technically in a reserve status for some years after the war, they and they alone should compose our military reserves in future years.

Unless the program is in effect at the termination of selective service, the army will lose the current "going concern value" of its vast physical organization and establishment. The cost to the nation will be almost

prohibitive, if all this value is to be junked; camps, aircraft, and equipment are to be allowed to deteriorate, only to have to be reëstablished and built up again in part several years thereafter.

Our adoption of the program now would not be without significance in world affairs. We must encourage all nations to believe that we take seriously our responsibility in the plans which are being sponsored for a peaceful world. Collective security agreements will progress exactly as far as the extent to which the United States participates in such agreements. It would strengthen our hand at the peace table through showing to all allies—strong and weak—that we are a united nation; that we are determined at once to be militarily strong and to remain true to our democratic traditions, a combination which the real friends of democracy everywhere would welcome in the world's foremost exponent of the democratic way of life.

The Plan for Universal Military Training

The objective of universal military training is to provide a pool of ready, trained men, capable of being rapidly mobilized in event of a national emergency to reinforce the regular army. The regular army would be no larger than necessary to perform its normal peacetime duties and to meet sudden minor emergencies.

Our training efforts in this war have been directed toward two different but related goals—unit training and replacement training. Unit training, designed to produce units capable of being committed to combat, requires that the soldier first be basically trained and made proficient as an individual, and then that he be trained as a member of a team.

Replacement training, on the other hand, is designed to produce a basically trained individual soldier, proficient in the use of his weapons and trained in elementary squad and platoon tactics to the extent necessary for him to fit into the highly trained veteran team. The replacement who joins a unit made up of experienced soldiers depends upon their skill and guidance for his final training on the job. Graduates of a universal military training program will be the men who, in the event of war, will constitute new units.

The contemplated program for universal military training parallels the present program for large unit training. It will produce divisions, air forces groups, and other large units in the shortest time upon mobilization. It will develop leaders and commanders trained in handling men, weapons and supplies. It will provide a reserve of specialists and technicians trained to fill key positions in units.

The program is far more than a mere schedule of hours, days, weeks and months. It is a carefully integrated 52 weeks of progressive training. All young men would pursue the same course in basic soldiery. This is a foundation of but a few weeks. With this as a start, the young man would be assigned to learn technical subjects which will fit him as one of the hundreds of specialists required in modern armed forces. Curricula and methods of instruction will be modified as changes in training procedure may be indicated as a result of research.

At the conclusion of his training as an individual specialist, he applies this training as a member of a small team, continues it as a member of a large team, and in the last weeks, applies it in large-scale maneuvers. The 52 weeks are divided into 5 well-defined phases, in each of which training is progressively applied to the end that at the conclusion of the course, the training will stick with the trainee for a long enough time to enable him to rejoin the armed forces upon a declaration of a national emergency by the Congress with a minimum of refresher training, and can take his place on the same kind of team for which he was trained.

When it is considered that the young men to be trained will be preparing to participate in complex warfare against trained adversaries, there should be no disposition to reduce the training period below the minimum essential to do it effectively. In one year, we can train them with sufficient thoroughness to insure that, even though the emergency should arise some years after the completion of their training, the essential knowledge and skills acquired in training will be retained. Less than one year of training would necessitate shortcuts and omissions that would dangerously decrease the value of the trainees as soldiers and would correspondingly increase the hazard of combat to themselves.

The training should be conducted continuously for 12 months. Interruptions will impair the effectiveness of the military instruction on which the fate of our nation may some day depend. If piecemeal military instruction is completed with approximately the same thoroughness, it will require additional time. At the beginning of each period of training, time would be lost in examining, classifying, and reconditioning the trainees. Instruction partially assimilated and insufficiently practiced would require repetition.

From the standpoint of military training, then, and of the taxpayer, who deserves full value for his money, the weakness of a series of short snatches of training is apparent.

Basic military training cannot be effectively conducted in the classrooms and on the campuses of our schools and colleges. The soldier must learn to live and do his work in the field. The large and unrestricted areas of varied terrain necessary to effective basic training cannot be provided in the vicinity of our colleges. The numerous firing ranges, with their extensive danger zones, as well as many other necessary training aids, are not suited to the college environment. It would not be possible to assemble and maintain at any college the wide variety of weapons and equipment required in the combined training that has become abso-

lutely essential to effective preparation for modern war.

It is entirely practicable to conduct effective officer training in the colleges and universities provided that the candidates are basically trained soldiers when they arrive. With universal military training completed prior to the enrollment of students in college, we shall be able for the first time to raise the Reserve Officers Training Corps courses to a real collegiate level. The graduates of the Reserve Officers Training Corps will then constitute a more competent group of junior leaders than ever have been available to the reserve components of our Army.

It is obvious from the foregoing that if the program is to provide a reservoir of men adequately trained for the protection of the country, the training should be for one year, should be continuous, and should be conducted in army camps and training centers.

National Security Requires More Than Universal Military Training

Military strength alone, however indispensable, is not all that is necessary for the security of the nation and the world. The military strength of a nation is but part of the larger provision it must make for its security.

The broadest and most fundamental basis of national security in a democracy is a people well-informed and well-intended. Of course, the War Department cannot and will not prescribe any set of principles whereby public opinion is fostered or influenced; its function will be limited to the release to the general public and dissemination to the army of such materials as are consistent with its mission.

The economic strength of the country, self-evidently, is a tremendous element in the security of the country. There must be a suitable organization to deal with our manpower and matériel resources, with provisions for industrial mobilization and for the continuance of scientific and technological research and development. These provisions will have their cost and will entail adjustments.

The cost of universal military training and of the other provisions necessary to the security of the country must be borne. This cost will constitute insurance against, or will reduce the cost of future wars. This is greatly to be preferred to the dangerous policy of the past, by which we have risked our nation and have incurred, during a few years of war, great costs because all considerations automatically become secondary to that of winning the final victory.

★ ★ ★ ★

COMBAT EXPERIENCES

Now is the time to write us a story of your experiences in combat.

The lessons you learned are valuable to others, not only for fighting the Japs but also for future study.

Even though the war in Europe is over, the record of what happened there still is important—and will be.

Now that you have more time, why not write up how your unit fought, what it learned, and the mistakes it made?

Write it your own way. Include photos if possible.

Anything from 100 to 2,000 words.

Send it through your Public Relations Officer for "field clearance." Address it to: The Cavalry Journal, 1719 K St., N.W., Washington 6, D. C.

The same invitation, of course, is extended men in the Pacific theater.

What have you learned in combat that will help others?

Re-tire in Time

THE acrobat's life depends on "timing." So does the life of a tire. Stocks of combat tires can be maintained only by making *all* tires yield the fullest service of which they are capable, so that tire production facilities are kept as much as possible from being overburdened.

An important factor in maintaining the tire supply is putting new treads on tires, and that's where "timing" becomes so vital. In order to conserve manpower and save valuable time, it is essential that tires be sent in for new treads *at the right time*—neither too soon nor too late.

Reports from the field indicate that at present many of the tires which are sent in to the tire collection centers for new treads are removed from service *too soon*. A tire can, and should, be used as long as the tread is still raised slightly near the center. Any tires in this category which are sent into the tire collection centers must be returned to the field and reinstalled. Thus, all of the handling necessary for sending them in, inspecting and classifying them, and returning them to service, becomes wasted motion and effort. It puts an unnecessary strain on the already overburdened collection centers. Only when the treads wear smooth in the center are tires ready for a *face-lifting* job.

The number of tires which are removed from vehicles too late, when the rubber has worn down to the cord body of the tires, also represents a serious condition, since the scarcity of tire carcasses is a more important factor in the present task of supplying tires than the scarcity of rubber for new treads. This is due not only to the shortage of manpower, but also to the fact that synthetic rubber is far less satisfactory for use in construction of heavy truck tire casings than it is for use in new treads. The natural rubber casing dissipates heat and withstands far more abuse than the synthetic one. Therefore, it is extremely important that casings, many of which still contain natural rubber, be preserved to the maximum degree. For the natural rubber shortage is a very real one.

Responsible personnel must become increasingly conscious of this condition and take the necessary steps to overcome it. Inspections must be regular and thorough. The practice of rotating tires to different wheel positions when treads cup, or wear irregularly, must be followed. Irregular wear on front tires may be due to improper wheel alignment—which should be checked and corrected. When cuts expose tire cords, tires must be removed immediately and sent in for reconditioning.

In almost every military situation success depends to a large extent on acting at the right time. "Too soon" and "too late" aren't good enough. So it is with the process of putting new treads on tires!

Preventative Maintenance

Tropicalization

THE Pacific Theater involves some new angles because heat, moisture and fungus growths will damage many types of equipment unless special attention is given to combating them. Information on "Tropicalization" of many items of equipment may be found in publications listed under "Moistureproofing" in the index to FM 21-6. Technical manuals, too, frequently give information on the subject. It is smart to find out as much as possible about it ahead of time, for moisture and fungus do their damage fast.

It might be thought from the sound of the word, that "Tropicalization" of equipment applies only to items used in tropical climates. This is not the case. The process is one that must be used on certain types of equipment in all climates, for it is a preventive service that protects material from damage caused by the two ever-present troublemakers—moisture and its co-partner, fungus growth.

Since armies must carry on in all kinds of weather, in all places and at all times, their equipment is constantly being subjected to the ravages of moisture and fungi, and fungi and moisture have been known to cause breakdowns in a matter of hours.

Here are a few other suggestions:

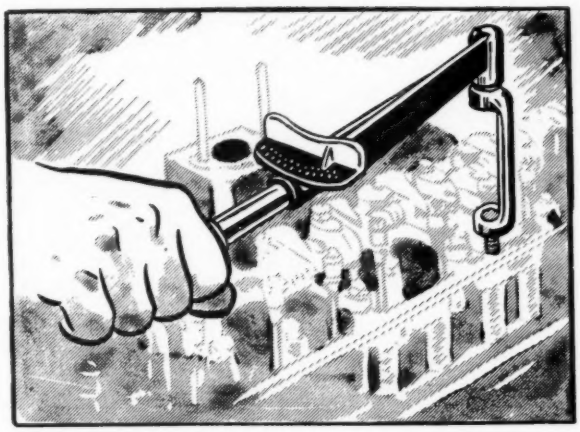
Keeping all vehicles in continuous operation is a duty faced most of the time by officers in charge of motorized units. It means preventive maintenance must be at peak efficiency, for only preventive maintenance—which avoids breakdowns by preventing them—can keep vehicles in continuous operation.

Wherever vehicles move together as a unit, maintenance discipline is vitally important, for everything must stop and start together. Therefore, if one vehicle breaks down, even for a minor defect, the whole unit may be delayed and the mission fail.

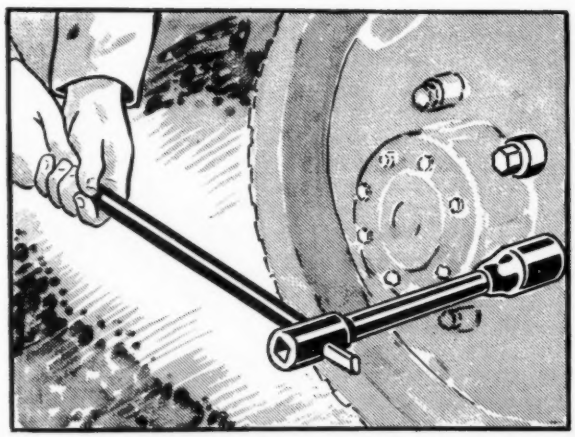
"U. S. A., Two, One, Seventeen" is not a quarterback's signal for an end run—it means Rifle Bore Cleaner. U.S.A., Two, One, Seventeen (2-117) puts weapons in shape and well-kept weapons win the yardage and victory.

Do's and Don'ts on care of Tools

You know tools are needed to keep cavalry equipment operating. But do you know the five important steps in tool care? Test yourself. Then check the answers.



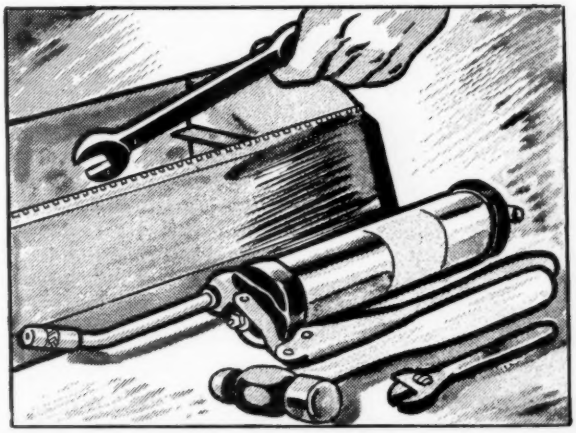
1. Use the RIGHT tool. Each tool is designed for a specific job. The wrong tool can result in personal injury, work damage, and tool breakage.



2. Use the tool RIGHT. Selecting the right tool is not enough. You've got to use the tool right. Be especially careful about using excessive force.

3. Keep tools in repair. A worn or damaged tool can be a liability. Keep cutting tools sharp, and keep the handles on hammers and the like tightened.

4. Keep tools clean and oiled. Dirty, grimy, rusty tools wear out faster and invite misuse. Apply a light coat of oil if necessary to prevent rust.



5. Put tools away. If tools are left lying around, they will become lost or stolen. This wastes time and tools, and may result in use of a wrong tool.

Book Reviews

THE MILITARY STAFF: Its History and Development. By Lt. Colonel J. D. Hittle, U.S.M.C. The Military Service Publishing Co. $2.00.

This book is unique because it is the first study in our military literature of the development of military staffs. It is specially important to professional officers in the American and British armies, because the intellectual and scientific organization of military staffs in these armies is a comparatively recent accomplishment. It is of particular interest to American officers because of the rapid changes and controversy incidental thereto that occurred in our army during the last 45 years.

It is a book which should be studied and consulted whenever in the future any proposed changes are being considered.

Aside from the personal views of the author, the book contains a lot of information of historical and current value that would be difficult for anyone to find without exhaustive research and exploration into many documents and books, which are not immediately at hand.

General H. S. Hawkins.

PISTOL AND REVOLVER SHOOTING. By Walter F. Roper. Macmillan. $2.49.

PRINCIPLES OF FIREARMS. By Charles E. Balleisen. John Wiley & Sons. $2.50.

PRACTICAL MARKSMANSHIP. By M. M. Johnson, Jr. William Morrow & Co. $2.50.

Walter F. Roper is a mechanical engineer, specializing in the study of guns and ballistics. He has designed a handgun stock to fit the shooter's hand, and a self-locking micrometer sight for handguns. His book contains a history of small arms, the growth of shooting clubs, the old time experts and the guns they used. Each type of weapon has a special chapter, and there is a chapter on handgun stocks, and one on handgun sights. A section is devoted to instructions on shooting, a description of the rules, customs and methods of scoring, present-day records and ballistic data of ammunition.

Principles of Firearms has been written specifically for engineers and those requiring an up-to-date guide, with charts and diagrams, on engineering fundamentals essential for the accurate analysis, design, and construction of modern firearms. Its purpose, as stated in the preface is "to expound the concept that an automatic firearm is a piece of machinery operating in accordance with well-known laws of physics and hence capable of being analyzed and designed in accordance with common engineering practice."

In *Practical Marksmanship*, Captain Johnson adds another valuable contribution to the literature on firearms. This book takes up where the military manuals leave off and endeavors to carry the reader through that period of confusion which comes when he leaves the rifle range, qualified in known distance marksmanship, and begins firing on field targets at unknown ranges.

In his introduction to Captain Johnson's book, Major General Julian C. Smith of the Marine Corps says: "The chapters on ballistics, sighting-in and adjusting for range give information not usually included in standard manuals. They describe methods that should prove valuable on occasion not only to the individual shooter, but to the commander of the rifle or machine-gun platoon who must bring effective fire upon the enemy in the ever-changing situations of modern battle.

CHINA AMONG THE POWERS. By David Nelson Rowe. Harcourt, Brace & Co. $2.75.

Dr. Rowe was born in Nanking and lived in China until he began his studies in International Law and Relations at Princeton. Subsequently he did postgraduate work at the University of Southern California and the University of Chicago, as well as at Harvard. In 1942 he returned to China for a short while.

He here presents a serious study of the facts of China's position as a world power: the strength and weakness of its geographical structure, its resources in men and materials, its social organization and economic life. He also suggests how Russia, the United States, and Great Britain can, over the next 25 years, help China to overcome her major problems and become strong enough to assume her proper rôle in far eastern affairs.

THROUGH JAPANESE EYES. By Otto D. Tolischus. Reynal & Hitchcock. $2.00.

The Japanese are considered by Occidentals to be inscrutable, as are most Asiatics. This belief is largely the result of a complete lack of interest in the history, culture, and customs of the Japanese people.

Mr. Tolischus has availed himself of the ample opportunity provided him as a foreign correspondent in Tokyo from 1939 to 1942 to study the mores and tenets productive of Japanese ideology. It is his opinion that most books attempting to explain the character of the Japanese are written from a western point of view and hence becloud rather than clarify the issues. His method of solving the enigma of the Japanese mind is to select portions from their own documents and writings—thus, *Through Japanese Eyes* is an effort to make the Japanese explain themselves. It contains much valuable material, but lack of an index makes specific reference impossible, and the brief extracts make choppy reading.

JAPANESE MILITARISM, Its Cause and Cure. By John M. Maki. Alfred A. Knopf. $3.00.

"Our war against Japan has been long and costly in both men and treasure. Yet we still have not revealed clearly that we know what we are fighting for. . . . The lack of a clearly defined set of war aims against Japan has certainly not impaired the fighting efficiency of the armies and the naval and air forces that have been piling defeat after defeat on the Japanese enemy. But as the final defeat of Japan comes nearer and the problems of the peace loom larger, we must have a clearer conception of the nature of the ideas that we are fighting. . . . We shall not have won the war until the peace has been firmly established, and it can be so established only after the crushing of the ideas on which Japanese militarism and aggression are based."

With these statements Mr. Maki prefaces his book on the cause and cure of Japanese militarism.

It would be difficult to find a person more ably suited by birth and background to the difficult task of explaining the problem that faces the American people in the far east. Born of Japanese parents in Washington, Mr. Maki was adopted and reared by American foster-parents, and has spent most of his life studying and teaching far eastern affairs primarily as related to Japan.

Undoubtedly one of the best of the recent studies published on the problems of the Orient, this book is based on a scholar's knowledge, and includes informative summaries of the political and economic histories of Japan. It takes proper cognizance of the fact that the destruction of Japan's present ideology will create a vacuum which must be filled and gives concrete suggestions for the re-education of the people.

* * *

THE GOVERNING OF MEN. By Alexander H. Leighton. Princeton Press. $3.75.

Commander Leighton holds bachelor degrees from both Princeton and Cambridge, where he specialized in neurophysiology. After graduation from the Johns Hopkins Medical School, he entered the fields of psychiatry and social anthropology. Called to active duty with the Navy in 1941, he brought with him field experience with the Navaho Indians in the Southwest and the Eskimos in Alaska, and had become a consultant to the U. S. Office of Indian Affairs. This varied experience led to his assignment to the Japanese Relocation Center at Poston, Arizona, to "apply the methods of social science" to that troubled community.

The first part of *The Governing of Men* is a clinical account of the strike at Poston and the attitudes, tensions, and frustrations of both administrators and administered. The relocation camp afforded a remarkable opportunity to observe people under stress. In the second section of his book, drawn from other sources besides Poston, Commander Leighton presents general principles and recommendations.

This book can be recommended without reservation to officers facing problems of civil administration, citizens interested in minority groups and race relations in the United States, and students of public opinion and industrial relations.

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THE PATTERN OF SOVIET POWER. By Edgar Snow. Random House. $2.75.

Edgar Snow is familiar to many readers as the author of *Red Star Over China, Battle for Asia,* and the more recent best seller, *People On Our Side.*

Mr. Snow was in Stalingrad when the Germans were halted at the point of their deepest penetration into Russia. He traveled all over the Soviet Union and was one of the American correspondents permitted to visit Poland and the Eastern front. *The Pattern of Soviet Power* is, therefore, the result of serious study and the product of a keen analytical mind. It is definitely not the result of a 6-week observation trip, such as Mr. White engaged in, and from which he attempted to draw profound conclusions in his *Report on the Russians.* Hasty deductions, by men whose experience has been too brief and of insufficient depth to father real knowledge, are an affront to truth as well as a danger to future peace.

It is to be hoped that the American people will avail themselves of the erudite publications now available to acquire a broader and sounder knowledge of the accomplishments and aims, as well as the limitations of the U.S.S.R.

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THE WISDOM OF ISRAEL. Edited by Lewis Browne. Random House. $3.95.

The man who wrote *This Believing World,* for the layman, the best obtainable book on comparative religions, is eminently suited, as writer and student, to edit this long overdue anthology of Jewish writings.

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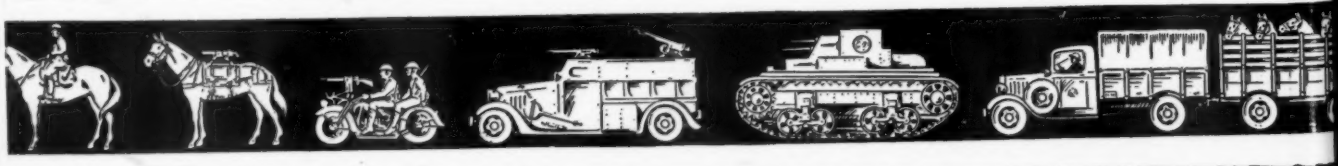
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